

REVISION OF THE NORTH AMERICAN EMPIDÆ—A FAMILY OF TWO-WINGED INSECTS.

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Honorary Custodian of the Collection of Diptera.

THE PRESENT paper, which is entirely preliminary in its character, is based upon a study of the rich material contained in the collection of the United States National Museum, supplemented by my own collection and the specimens received from several correspondents, notably from Dr. W. A. Nason, of Algonquin, Illinois; Annie Trumbull Slosson, of New York City; Mr. Charles Robertson, of Carlinville, Illinois, and Prof. Howard Evarts Weed, of Agricultural College, Mississippi. I desire in this place to thank all of those who by the gift or loan of specimens or in other ways have aided in the preparation of this paper, and especially the authorities of the United States National Museum, for the privilege of studying the fine series of specimens in the collection of that institution. Types of the new species, not previously possessed by the Museum, have been deposited with it.

With all this material before me, however, there are still several species of which I have seen no representative, and in the tables which accompany this paper I have in several instances been compelled to make use of only those characters mentioned in the existing descriptions. These tables, despite these imperfections, have been very useful to me in identifying the species, and they are given in the hope that other students may find them equally helpful. Only those genera in which new species are herewith described are tabulated in the present paper, which deals only with the North American forms.

In Osten Sacken's Catalogue of the Described Diptera of North America, twenty-four genera of Empidæ are credited to our fauna. The following observations on some of them may not be out of place here:

Tachydromia.—The species catalogued under this genus belong to *Platypalpus*.

Tachypeza.—The species placed under this genus belong to *Tachydromia*. Macquart restricted the latter name to the present group and applied the name *Platypalpus* to the preceding group three years before Meigen proposed the name *Tachypeza* for the present group; consequently Macquart's name, being the earlier, must be retained. This

course has already been adopted by Dr. Schiner and the British entomologists.

Synamphotera.—This genus is not as yet known to occur in our fauna; in the single species, *S. bicolor*, referred to it by Loew, the third vein is simple, and not forked; judging from the description, this species apparently belongs to the genus *Sciodromia*, Haliday, not heretofore reported as occurring in our fauna.

Hemerodromia.—The species catalogued under this name are very heterogeneous, and in the present paper they are separated into three genera, viz: *Mantipeza*, Rondani, *Hemerodromia*, Meigen, and a new genus for which the name of *Neoplasta* is proposed. I have followed Rondani in restricting the genus *Hemerodromia* to those forms in which the discal cell is united with one of the other cells, since this author appears to have been the first to dismember the old genus.

Since the publication of the above-mentioned catalogue, three new genera of Empidæ have been proposed, viz, *Mythicomylia*, described by the writer,¹ and *Enoplempis* and *Megacyttarus*, published by Bigot.² *Enoplempis* was known to the author in the male sex only. Specimens of what is evidently the species described by him as *Enoplempis cinerea*³ were collected by the writer in southern California. The females do not differ in any respect from typical species of *Empis*, and therefore should not be separated from it. Both Loew and Schiner have described under *Empis* forms structurally identical with *Enoplempis*.

The genus *Megacyttarus*, Bigot, was founded on a single female specimen without antennæ; this is evidently the female of *Rhamphomyia limbata*, Loew, specimens of which are in the National Museum collection from the same locality (Colorado) as the type of *Megacyttarus*, and were evidently from the same collector (Morrison). As the male of *R. limbata* does not differ in any respect from a typical *Rhamphomyia*, this proposed new genus must be regarded as being synonymous with the latter.

In the following pages four new genera are established, viz: *Neoplasta*, *Empimorpha*, *Euhybus* and *Neocota*; and two or three genera not heretofore known to occur in our fauna have been recognized, viz: *Mantipeza*, Rondani, *Sciodromia*, Haliday (probably), and *Meghyperus*, Loew.

The genus *Hilarimorpha*, Schiner, has by some authors been placed in the present family, but it has much more affinity with the Leptidæ, to which family it has already been referred by Osten Sacken. Besides the analogies mentioned by this author as existing between *Hilarimorpha* and the other genera of Leptidæ,⁴ may be mentioned as a common character the entire eyes, as opposed to the eyes deeply emarginate opposite the antennæ, as they are in the Empidæ.

¹ Entomological News, IV, June, 1893, p. 209.

² Bulletin des Séances de la Société Entomologique de France, 1880, p. 47.

³ Loc. cit., 1882, p. 91.

⁴ Berliner Entomol. Zeitschrift, 1890, XXXV, p. 303.

The following table contains all the genera of Empidæ at present known to occur in North America:

ANALYTICAL KEY TO THE NORTH AMERICAN GENERA OF EMPIDÆ.

1. Third longitudinal vein forked 2
 Third longitudinal vein simple, not forked..... 16
2. Discal cell present, complete..... 4
 Discal cell united with one of the other cells..... 3
3. With only two veins issuing from the discal cell, the anterior one forked
 Hemerodromia (p. 391).
 With three veins issuing from the discal cell, the anterior one simple, not
 forked *Neoplasta* (p. 392).
4. Three veins issue from apex of discal cell..... 5
 Two veins issue from discal cell, fourth vein forked, proboscis perpendicular
 Mantipeza (p. 392).
5. Anterior branch of the third vein terminates in the costa (except in some
 species of *Empis*)..... 6
 Anterior branch of the third vein terminates in the second vein; anal cell as
 long as the second basal, the vein at its apex perpendicular to hind
 margin of the wing..... *Blepharoprocta*.
6. Proboscis shorter or but slightly longer than height of head..... 7
 Proboscis much longer than height of head; vein at apex of anal cell nearly
 parallel with the hind margin of the wing..... 12
7. Vein closing the anal cell nearly perpendicular to the hind margin of the
 wing..... 8
 Vein closing the anal cell nearly parallel with the hind margin of the wing. 9
8. Anterior branch of third vein connected with the second by a cross vein;
 veins 2 and 3 undulating; wings dotted over their entire surface
 Ardoptera.
 Anterior branch of third vein not connected with the second; veins never
 undulating; wings not dotted over their entire surface; alulae well
 developed *Brachystoma* (p. 393).
9. Antennae three jointed..... 10
 Antennae one-fifth as long as the head, apparently only two jointed, last
 joint oval; style thick, nearly half as long as the antennae; proboscis
 very short *Hormopeza*.
10. Antennal style nearly twice as long as the third joint; proboscis soft, much
 shorter than the head 11
 Antennal style scarcely longer or shorter than the third joint; proboscis
 usually rigid..... *Hilara* (p. 394).
11. Alulae well developed..... *Gloma*.
 Alulae very small..... *Clinocera*.
12. Proboscis directed downward or backward..... 13
 Proboscis directed forward; arista of antennae very short..... *Itaphila*.
13. Face naked 14
 Face clothed with bristly hairs *Empimorpha* (p. 396).
14. Hind legs longer than the others, hind femora scarcely or not at all thick-
 ened..... 15
 Hind legs not longer than the others, hind femora greatly thickened, eyes in
 both sexes widely separated *Pachymeria*.
15. Proboscis not or scarcely longer than height of head *Hilara* (p. 394).
 Proboscis considerably longer than height of head *Empis* (p. 397).

16. Anal cell present, sixth vein never wholly wanting	17
Anal cell wholly wanting, only the vein at its apex sometimes present, sixth vein wholly wanting, discal cell united with one of the other cells.....	31
17. Discal cell present, complete	18
Discal cell united with one of the other cells.....	30
18. Three veins issue from the discal cell, fourth vein always simple, never forked.....	19
Two veins issue from the discal cell	23
19. Vein at apex of anal cell nearly parallel with the hind margin of the wing, anal cell much shorter than the second basal	20
Vein at apex of anal cell not parallel with the hind margin of the wing, anal cell almost as long as or longer than the second basal cell	22
20. Proboscis as long as or longer than height of head, antennæ distinctly three jointed	21
Proboscis shorter than height of head, antennæ apparently two jointed <i>Microphorus</i> (p. 409).	
21. Face naked	<i>Rhamphomyia</i> (p. 409).
Face clothed with bristly hairs	<i>Neocota</i> (p. 434).
22. Second vein terminates in the costa, anal cell closed far from the wing margin.....	<i>Sciodromia</i> .
Second vein terminates in the first, anal cell reaches the wing margin <i>Mythicomyia</i> (p. 409).	
23. Fourth vein simple, not forked	24
Fourth vein forked, anal cell as long as or longer than the second basal, the vein at its apex nearly perpendicular to the hind margin of the wing.....	<i>Meghyperus</i> (p. 435).
24. Vein at apex of anal cell nearly perpendicular to the hind margin of the wing	25
Vein at apex of anal cell nearly parallel with the hind margin of the wing Some females of <i>Rhamphomyia</i> (p. 409).	
25. Antennal arista apical.....	26
Antennal arista subdorsal, third antennal joint oval, anal cell shorter than the second basal.....	<i>Ocydromia</i> .
26. Anal cell as long as or longer than the second basal	27
Anal cell shorter than the second basal, origin of second vein from the first nearer to the humeral than to the small cross vein. <i>Leptopeza</i> (p. 435).	
27. Origin of the second vein nearer the small cross vein than to the humeral, or midway between them	28
Origin of the second vein nearer the humeral than to the small cross vein <i>Syneches</i> (p. 436).	
28. Vein between first and second basal cells present.....	29
Vein between first and second basal cells wanting.....	<i>Synidias</i> .
29. Eyes in both sexes widely separated on the face, under side of first two joints of hind tarsi bearing short black spines	<i>Hybos</i> (p. 437).
Eyes in both sexes contiguous on the face, under side of hind tarsi destitute of stout black spines.....	<i>Enhybus</i> (p. 437).
30. Middle femora slender, vein at apex of anal cell nearly parallel with the hind margin of the wing.....	<i>Cyrtoma</i> .
Middle femora greatly thickened, vein at apex of anal cell nearly perpen- dicular to the hind margin of the wing.....	<i>Platypalpus</i> (p. 438).
31. Antennal arista apical.....	32
Antennal arista dorsal or subdorsal.....	33
32. Front femora thickened.....	<i>Tachydromia</i> (p. 439).
Front femora not thickened.....	<i>Drapetis</i> .
33. Palpi broad, front of an equal breadth.....	<i>Stilpon</i> .
Palpi narrow, elongate.....	<i>Phoneutisca</i> .

Genus HEMERODROMIA, Meigen.

The occurrence in North America of *H. precatória*, Meigen, rests on Walker's authority, and will require verifying before being accepted. Our species are brought together in the following table:

ANALYTICAL KEY TO THE SPECIES OF HEMERODROMIA

- Anal cell, or at least the cross vein at its apex, present.
- Thorax and abdomen yellow.....*defecta*.
 Thorax and abdomen black.....*albipes*.
- Anal cell wholly absent.
1. Thorax, or at least the pleura and sternum, red or yellowish..... 2
 Thorax wholly black, no large tubercle on underside of front femora near the base.....*captus* (p. 391).
2. With a medio-dorsal black vitta on the thorax, front femora destitute of a large tubercle on the under side near the base.....*empiformis*.
 With two black dorsal vittæ on the thorax, front femora bearing a large, spine tipped tubercle on the under side near the base.....*superstitiosa*.
 With no black vitta on the thorax, front femora as in the preceding species
rogatoris (p. 392).

HEMERODROMIA CAPTUS, new species.

Male.—Head black, white pollinose, depressed; antennæ and proboscis light yellow; proboscis rigid, slightly shorter than height of head, projecting obliquely backward; first antennal joint one-half as long as the second, the third two and a half times as long as the second and one and a half times as broad, broadly oval but tapering to the apex, the apical third styliform; upper side of third joint short pilose; style robust, one-third as long as the third joint; eyes bare, widely separated. Thorax, scutellum, metanotum, pleura, and sternum black, opaque grayish pollinose, bristles of thorax and of scutellum microscopic. Abdomen brownish black, the sides narrowly, front corners of each segment and the venter, yellow. Legs, including the coxæ, light yellow, front femora not longer than the coxæ, greatly thickened, nearly three times as thick as the tibiæ, with small teeth below, as has also the tibiæ. Base of front femora destitute of a tubercle on the inner side beyond apex of the folded tibiæ, the spine at this point springing directly from the surface. Wings hyaline, stigma wanting, as are also the discal and anal cells; second basal cell exceeding the first by about twice the length of the cross vein at apex of the second; upper fork of fourth vein about equaling the length of the penultimate section of that vein. Halteres light yellow.

Type.—No. 3151, U.S.N.M.; length, 2 to 3 mm. Five specimens in the National Museum collection.

Locality.—New York.

HEMERODROMIA ROGATORIS, new species.

The male differs from *H. captus* as follows: Thorax, scutellum, metanotum, pleura, and sternum light red. Abdomen in middle of dorsum brownish red, the seventh segment wholly light yellow; hypopygium large, projecting both above and below the abdomen, reddish brown. Middle and hind coxæ light red; on the under side of each front femur near its base, and just beyond the tip of the folded tibia, is a rather large blunt tubercle, bearing at its summit a stout spine directed obliquely forward.

Type.—No. 3152, U.S.N.M.; length, 4 mm. A single specimen.

Locality.—North Carolina.

NEOPLASTA, new genus.

Head somewhat depressed, eyes widely separated in both sexes; antennæ much shorter than the head, three jointed, third joint oval, slightly longer than broad, pointed at the apex, thickly short pilose; style apical, robust, much shorter than the third joint; proboscis projecting downward, subequal in length to height of head; palpi small, nearly cylindrical. Front coxæ two-thirds as long as the front femora, the latter nearly twice as thick as the other femora, which are slender; none of the tibiæ armed with a stout spur at the tip. Wings with the third vein forked, the discal cell present and sending three veins to the wing margin; second basal cell united with the discal, anal cell present, the vein at its apex nearly perpendicular to the hind margin of the wing.

Type.—*Hemerodromia scapularis*, Loew, in the Museum of Comparative Zoölogy, Cambridge, Massachusetts.

Genus MANTIPEZA, Rondani.

ANALYTICAL KEY TO THE SPECIES OF MANTIPEZA.

- | | |
|--|---------------------------|
| 1. Thorax largely yellow, abdomen and venter partly yellow..... | 2 |
| Thorax and abdomen wholly ash-gray, stigma of wings yellowish brown..... | <i>valida</i> . |
| 2. Lateral margins of thorax black, scutellum blackish | 3 |
| Lateral margins of thorax yellowish, scutellum light yellow..... | <i>palloris</i> (p. 392). |
| 3. Thorax with a medio-dorsal black vitta, stigma of wings round, black | <i>notata</i> . |
| Thorax destitute of such a vitta, stigma very pale yellowish, scarcely visible | <i>obsoleta</i> . |

Loew's three species of this genus were originally described under *Hemerodromia*.

MANTIPEZA PALLORIS, new species.

Male and female.—Head, black; face, cheeks, and lower part of front nearly to the lowest ocellus, yellow, densely white pollinose; antennæ, proboscis, and palpi, light yellow. Thorax reddish yellow, marked with two slightly darker vittæ and with a whitish stripe between them;

pleura reddish yellow; scutellum light yellow, bearing two long apical and two much shorter lateral bristles; metanotum reddish brown; abdomen yellow, with a medio dorsal, indistinct brownish vitta: legs and halteres yellow; wings hyaline; stigma wanting.

Types.—Nos. 3153 and 3154, U.S.N.M.: length, 4 to 5 mm. Three males and one female.

Locality.—New Hampshire.

Genus BRACHYSTOMA, Meigen.

The species described by Loew belong to *Blepharoprocta*, a genus which he founded for their reception.

BRACHYSTOMA ROBERTSONII, new species.

Male.—Head black, gray pollinose; eyes separated as widely as the upper ocelli, facets of a uniform size: face naked, scarcely one-half as wide as the front; antennae yellow, the third joint except at base, and the style, brown; first joint shorter than the second, the third lanceolate, scarcely twice as long as broad, twice as long as the second; style terminal, curved, one-third longer than the third joint; proboscis yellow, thick, perpendicular, nearly two-thirds as long as height of head; palpi whitish, perpendicular. Thorax very shining black; pleura blackish, opaque light gray pollinose; metanotum and scutellum the same, the latter bearing two bristles; no pile in front of halteres. Abdomen compressed, shining yellowish, a large dorsal blackish-brown spot on each segment; hypopygium large, ascending, each upper lamella produced at the outer angles into a pair of long, erect, cylindrical, brown processes; middle lamellae very large, each bearing at its tip a rather large curved process, in front of which is a small, pilose tubercle, while behind it is a smaller tubercle bearing a few long whitish bristles; the inner side of each middle lamella bears a long, cylindrical, brown-tipped process; filament slender, arcuate, proceeding from apex of the rather large lower lamella. Legs, including the coxae, yellow; front coxae not one-half as long as their femora; front and hind femora slender, the middle greatly thickened, nearly twice as thick as the front ones; their under sides thickly beset with very short black spines and with longer black bristles; inner side of middle tibiae also thickly beset with very short black spines; hind femora bearing a black bristle on front side before the apex, a similar one on outer side of hind tibiae near the base; all metatarsi nearly equally slender, the hind ones one-third longer than the others. Knob of halteres yellow. Wings nearly hyaline, stigma wanting, first basal cell slightly longer than the anal, which is a trifle longer than the second basal.

Type.—No. 3155, U.S.N.M.; length, 4 mm. Received by the author from Mr. Charles Robertson.

Locality.—Illinois.

Genus HILARA, Meigen.

ANALYTICAL KEY TO THE SPECIES OF HILARA.

1. Thorax black..... 3
 Thorax, femora, and halteres yellow..... 2
 Thorax and abdomen metallic green..... *viridis* (p. 395).
2. Tarsi wholly brown, pile on inner side of middle tibiæ long..... *testacea*.
 Tarsi brown only at apex, elsewhere yellow, pile on inner side of middle
 tibiæ short..... *lutea*.
3. Femora black..... 10
 Femora yellowish..... 4
4. Knob of halteres yellowish..... 6
 Knob of halteres black..... 5
5. Wings darker at apex than toward the base, scutellum bearing six bristles:
 length, 5 mm..... *umbrosa*.
 Wings not darker at apex than elsewhere, scutellum bearing only four
 bristles; length, 3 mm..... *gracilis*.
 Wings gray; length of body, 2 mm..... *migrata*.
6. Abdomen wholly black..... 7
 Abdomen on basal half yellow, palpi yellow, stigma blackish brown.... *basalis*.
7. Posterior legs and the stigma blackish..... *plebeja*.
 Posterior legs largely or wholly yellow..... 8
8. Palpi yellow, stigma blackish..... 9
 Palpi black, stigma obsolete..... *macroptera*.
9. Pile of thorax in rows, front metatarsi thickened, ovate..... *seriata*.
 Pile not in rows, front metatarsi not thickened, antennæ of male eight times
 as long as the head..... *johusoni* (p. 395).
10. Knob of halteres black..... 12
 Knob of halteres yellowish, palpi black..... 11
11. Stigma brownish black, knees yellow..... *trivittata*.
 Stigma obsolete, knees whitish..... *leucoptera*.
12. Stigma brownish black..... 13
 Stigma obsolete, palpi black, front femora in both sexes very thick, knees,
 tips of front tibiæ and their tarsi yellow..... *femorata*.
13. Thorax grayish-black, never velvety..... 14
 Thorax and head velvet black, scutellum and abdomen shining, palpi black,
 coxæ and legs wholly black..... *velutina*.
14. Abdomen shining or subshining..... 17
 Abdomen opaque, palpi, coxæ and legs, excepting the knees, wholly black.. 15
15. Front velvet black, wings blackish..... *tristis*.
 Front grayish, not velvety; wings hyaline or pale grayish..... 16
16. Pile of abdomen largely yellowish, thorax marked with three blackish vittæ.....
 *cana* (p. 395).
 Pile of abdomen black, thorax not vittate..... *unicolor*.
17. Palpi yellow..... 19
 Palpi black, coxæ and legs, excepting the knees, black..... 18
18. Thorax shining, not vittate..... *atra*.
 Thorax opaque gray pollinose, marked with three black vittæ..... *mutabilis*.
19. Front coxæ and base of front femora yellow, wings pale grayish.... *nigriventris*.
 Front coxæ and base of femora black, wings hyaline..... *brevipila*.

Hilara transfuga, Walker, is too imperfectly described to admit of giving it a place in this table.

HILARA JOHNSONI, new species.

Male and female.—Black: the palpi, halteres, coxæ, femora and tibiæ yellow. Eyes of male separated over twice the width of the lowest ocellus. Head, thorax, and scutellum opaque gray pollinose, that on the thorax somewhat yellowish, their short pile and bristles black; scutellum bearing four bristles: abdomen subshining, its pile rather long, black. Wings hyaline, stigma dark brown. Proboscis of male slightly over one-half as long as, in the female fully as long as, height of head. Antennæ of female three times as long as the head, but in the male excessively long, being fully eight times as long as the head, the third joint five times as long as the first, the style three-fourths as long as the third joint and *coiled spirally toward its tip*, a character not occurring in any other Empid known to me.

Types.—Nos. 3156 and 3157, U.S.N.M. Three males and one female; length, 3.5 to 4 mm. Collected by Mr. C. W. Johnson, of Philadelphia, Pennsylvania, after whom I take pleasure in naming this remarkable species.

Locality.—Enfaula, Alabama.

HILARA CANA, new species.

Male.—Wholly black, including the palpi and knees. Head opaque, gray pollinose, the pile black. First two antennal joints subequal in length, the third three times as long as the second, style nearly as long as the third joint. Proboscis as long as height of head. Eyes widely separated. Thorax opaque gray pollinose, marked with three brownish-black vittæ, pile and bristles black; pleura naked. Scutellum bearing four black bristles. Abdomen and hypopygium opaque gray pollinose, the pile largely yellowish. Legs bearing rather long scattered pile, none of the femora unusually robust, front tibiæ more robust than the middle ones, front metatarsi greatly enlarged. Wings hyaline, stigma grayish-black.

Female.—Like the male, except that the front tibiæ are not thicker than the middle ones, and the front metatarsi are not enlarged.

Types.—Nos. 3158 and 3159, U.S.N.M.; length, 3 to 4 mm. Twelve males and seven females collected by the writer in February and March.

Locality.—Southern California.

HILARA VIRIDIS, new species.

Male.—Shining metallic green, the pleura largely black, antennæ, proboscis, hypopygium, and legs yellowish brown; eyes separated width of lower ocellus; proboscis slightly shorter than height of head; halteres black; pile and bristles of entire body black; scutellum bearing only two bristles: wings hyaline, veins yellowish, anterior branch of third vein perpendicular to that vein.

Type.—No. 3160, U.S.N.M., a single specimen; length, 2.5 mm. Collected by Mr. T. D. A. Cockerell, November 3, 1892.

Locality.—Kingston, Jamaica, West Indies.

EMPIMORPHA, new genus.

Same as *Empis*, except that the face is covered with long bristly hairs; antennal style apical, proboscis directed downward, longer than height of head; third vein forked; discal cell perfect, sending three veins to the wing margin; anal cell shorter than the second basal, the vein at its apex nearly parallel with the hind margin of the wing.

Type.—*Empimorpha comantis*, new species, described below.

Two species, both from California, occur in our fauna.

ANALYTICAL KEY TO THE SPECIES OF EMPIMORPHA.

- Wings brown, costal cell reddish, pile in front of halteres and on sides of abdomen black *barbata*.
 Wings, including the costal cell, hyaline or grayish, pile in front of halteres and on sides of abdomen whitish..... *comantis*.

EMPIMORPHA COMANTIS, new species.

Male.—Head black, gray pollinose; pile of face mixed black and white; eyes narrowly separated, the space between them being narrower than width of lowest ocellus, the upper facets noticeably larger than the lower ones; antennæ black, the second joint reddish, slightly over one-third as long as the first; third joint subequal with the first, twice as long as broad; style slender, as long as the third joint; proboscis two and one-half times as long as height of head, projecting obliquely downward and backward; palpi slender, curving upward, yellowish, the base brown, the pile black and white. Thorax black, shining, three vittæ and the broad lateral margins opaque gray pollinose; pile of thorax very abundant, whitish, two longitudinal stripes of largely black pile on the dorsum; pleura black, gray pollinose, its pile whitish. Scutellum black, thickly whitish pilose, destitute of stout bristles. Abdomen shining black, depressed, twice as long as wide; its pile very abundant, on the first two segments and sides of the others largely whitish, on dorsum of remaining segments mostly black; hypopygium small, central filament hidden except at base. Legs rather robust, reddish yellow; coxæ, under side of each femur, apex of each tibia, and of each tarsal joint, blackish; legs simple, the pile abundant. Knob of halteres black. Wings hyaline, grayish toward the apex; veins, stigma, and a spot above furcation of second and third veins, dark brown.

Female.—Same as the male, except that the first abdominal segment and the bases of the second and third are opaque gray pollinose.

Types.—Nos. 3161 and 3162, U.S.N.M.; length, 11 mm. A male and female were received from Mr. Charles Fuchs, of San Francisco, California.

Locality.—Northern California.

Genus EMPIS, Linnæus.

As stated on a preceding page, *Enoplemis mira*, Bigot, and *E. cinerea*, Bigot, both belong to *Empis*. However, as the name *Empis cinerea* is preoccupied for a European species, Bigot's description of *E. cinerea* should be canceled.

Empis geniculata, Kirby, is evidently a synonym of *E. luctuosa*, Kirby.

Empis sociabilis, Williston, is described in the Kansas University Quarterly.¹

Empis agasthus, Walker, is too imperfectly described to be admitted in the table given below; it is from Hudsons Bay; is black, the halteres and legs yellowish, apices of femora, of tibiæ, and of tarsi blackish, the wings colorless; length, 3 mm.

ANALYTICAL KEY TO THE SPECIES OF EMPIS.

1. Thorax, including the pleura, wholly black..... 16
 Thorax, or at least the pleura, and also the femora, largely or wholly yellowish..... 2
2. Knob of halteres yellowish..... 3
 Knob of halteres blackish, head black, thorax with a medio-dorsal black vitta..... *leptogastra*.
3. Thorax yellowish, marked with four or five blackish vittæ..... 4
 Thorax not vittate, or with a medio-dorsal vitta, or the entire dorsum grayish black..... 8
4. Head grayish black..... 5
 Head and abdomen yellow; hind femora black vittate, and in the male furnished with teeth-like processes on the under side near the apex; hind tibiæ furnished with similar processes near the base..... *mira*.
5. Abdomen, except sometimes at apex, wholly black, coxæ black..... 6
 Abdomen yellow, base of each segment blackish, coxæ yellow, femora not vittate, hind femora and tibiæ of male simple..... *sordida*.
6. Front and middle femora black vittate, antennæ yellow except at tip, proboscis as long as the thorax..... *eudamides*.
 Front and middle femora destitute of black vittæ..... 7
7. Proboscis shorter than the body, antennæ wholly black, dorsum of thorax never grayish, wings brownish..... *ollius*.
 Proboscis nearly as long as the body, first two joints of antennæ yellowish, dorsum of thorax grayish, wings hyaline..... *abcirus*.
8. Head yellowish..... 9
 Head blackish..... 12
9. Abdomen yellowish, unmarked..... 10
 Abdomen blackish, sides and hind margin of each segment yellow, eyes of male separated, hind legs furnished with teeth-like processes..... *armipes*.
10. First two joints of antennæ yellow; length, 4 mm..... 11
 First two joints of antennæ black; length, 6 mm..... *colonica*.
11. Anterior branch of third vein connected with the second by a cross vein, all cross veins bordered with brown..... *paciloptera*.
 Anterior branch not connected with the second vein, cross veins not bordered..... *pallida*.

¹ Vol. II, p. 76 (1893).

12. Abdomen, except sometimes the sides, wholly blackish; antennæ black 14
 Abdomen yellowish; apex of each segment, and sometimes a median vitta, blackish; dorsum of thorax grayish black..... 13
 Abdomen and thorax yellow, unmarked; eyes of male subcontiguous; filament of hypopygium free, slender, arcuate *rufescens*.
13. Abdomen with a medio dorsal black vitta, first two joints of antennæ black, pleura unmarked *longipes*.
 Abdomen destitute of a medio-dorsal vitta, first two joints of antennæ yellow, pleura marked with black, scutellum bearing four bristles..... *humile* (p. 403).
14. Sides of thorax and of venter not thickly pilose..... 15
 Sides of thorax and of venter covered with long, abundant yellow pile. *laniventris*.
15. Tibiæ wholly yellow, hind legs simple *amytis*.
 Tibia black on apical part, hind femora near the apex and hind tibiæ near the base furnished with teeth-like processes in the male; eyes widely separated, scutellum bearing two bristles..... *loripedis* (p. 400).
16. Femora black or very dark brown..... 42
 Femora largely or wholly yellowish..... 17
17. Knob of halteres yellowish..... 22
 Knob of halteres blackish..... 18
18. Front and middle coxæ black..... 19
 Front and middle coxæ yellow, anterior branch of third vein usually ending in the second, eyes of male contiguous, filament of hypopygium slender, hidden except on basal part; both sides of each femur and tibia, and upper side of front and hind metatarsi in the female ciliate with scales *clausa* (p. 401).
19. Pile of abdomen black, sparse; that of thorax sparse..... 20
 Pile on sides of abdomen white, abundant, thorax thickly pilose, scutellum pilose and bearing twelve marginal bristles, hind femora twice as thick as their tibiæ, antennal style as long as the third joint.. *comantis* (p. 402).
20. Palpi yellow; length, 7 to 9 mm 21
 Palpi black, apices of tibiæ blackish, wings brownish, eyes of male contiguous, filament of hypopygium hidden; length, 4 mm *spiloptera*.
21. Scutellum bearing ten marginal bristles, abdomen on first four segments opaque gray pollinose, wings hyaline..... *valentis* (p. 402).
 Scutellum bearing only four bristles, abdomen shining, wings brownish gray, eyes of male separated, filament of hypopygium filiform.. *humile* (p. 403).
22. Wings hyaline or grayish..... 24
 Wings brown..... 23
23. Antennal style almost one-half as long as the broad third joint, eyes of male widely separated..... *tenebrosa* (p. 404).
 Antennal style less than one-fourth as long as the elongated third joint, eyes of male contiguous *spectabilis*.
24. Abdomen black or dark brownish..... 27
 Abdomen yellowish, sometimes marked with black..... 25
25. Dorsum of abdomen not marked with black in the middle..... 26
 Dorsum of abdomen more or less black in the middle, eyes of male widely separated, filament of hypopygium very thick at base, then suddenly attenuated; length, $6\frac{1}{2}$ mm..... *loripedis* (p. 400).
26. With a long bristle on costa near its base, pile of abdomen black, stigma distinct; length, 6 mm *tersa* (p. 404).
 Without such a bristle, pile of abdomen whitish, stigma wanting; length, $3\frac{1}{2}$ mm *compta* (p. 405).
27. Pile in front of halteres black..... 30
 Pile in front of halteres whitish; length, 6 to 7 mm..... 28

28. Scutellum bearing at least six bristles, under side of apical half of hind femora of female ciliate with scales *varida* (p. 403).
 Scutellum bearing only two bristles, both sides of middle and hind femora and tibiae of female ciliate with scales *capus* (p. 405).
 Scutellum bearing four bristles, legs of female not ciliate 29
29. Wings grayish, stigma distinct *arida* (p. 405).
 Wings whitish, stigma wanting *lericula* (p. 406).
30. Males 31
 Females 36
31. Filament of hypopygium free, at least on lower half 32
 Filament hidden, eyes widely separated; hind femora on under side near the tip, and hind tibiae near the base, bearing teeth-like processes... *poplitea*.
32. Hind femora near the tip and hind tibiae near the base destitute of teeth-like processes 33
 Hind femora and tibiae bearing such processes, eyes separated *manca* (p. 406).
33. Abdomen shining 34
 Abdomen opaque, eyes widely separated, hind trochanters produced at apex and ciliate with black spines; filament of hypopygium unusually thick at base 35
34. Front coxae black, eyes widely separated, scutellum bearing four bristles, wing veins brown; length, 5 mm.; antennal style one-third as long as the third joint *otiosa* (p. 407).
 Front coxae black, veins brown, antennal style over one-half as long as third joint *humile* (p. 403).
 Front coxae yellow, wing veins white; length, 3 mm *varipes*.
 Front coxae brown, scutellum bearing only two bristles, all femora not furnished with black spines on the under side, wing veins blackish; length, 4 mm *distans*.
35. Hypopygium with a backwardly curving, lunate process on its under side, wings pure hyaline, pollen of abdomen light gray *reciproca*.
 Hypopygium destitute of such a process, wings grayish, pollen of abdomen brownish *nuda*.
36. Abdomen opaque 38
 Abdomen shining 37
37. Front coxae yellow; length, $3\frac{1}{2}$ mm. *varipes*.
 Front coxae black; length, 6 mm. *otiosa* (p. 407).
38. Costa destitute of a long bristle near its base 39
 Costa bearing such a bristle, which equals the second joint of the front tarsi in length; front and hind metatarsi subequal in length *manca* (p. 406).
39. Metatarsi yellowish 40
 Metatarsi black, pollen of abdomen brownish *nuda*.
40. Third antennal joint slender, elongate 41
 Third joint broad, short, scarcely twice as long as the style; second segment of abdomen bearing a fringe of long black bristles toward the sides near the hind margin *gulosa* (p. 408).
41. Eastern species (New Hampshire) *reciproca*.
 Western species (Colorado to Alaska) *poplitea*.
42. Knob of halteres blackish 55
 Knob of halteres yellowish 43
43. Males 44
 Females 50
44. Eyes contiguous, or nearly so 46
 Eyes distinctly separated 45
45. Legs very slender, filament of hypopygium hidden, abdomen opaque; length, 4 mm *stenoptera*.
 Legs very robust, filament free, abdomen shining, the last segment destitute of white pollen *otiosa* (p. 407).

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 Venter furnished with two curved, black, bristly processes in front of the hypopygium; filament of the latter hidden; length, over 6 mm. *lavigata*.
 Venter with a single large process bristly at the posterior end; thorax sub-opaque gray pollinose, with three subshining black vittæ *virgata* (p. 408).
47. Wings brownish; length, $3\frac{1}{2}$ mm. 48
 Wings hyaline 49
48. Anterior branch of third vein straight and nearly perpendicular, fourth vein not reaching the wing margin. *labiata*.
 Anterior branch very oblique, filament of hypopygium very thick. *obesa*.
49. Fourth vein reaches the wing margin; anterior branch of the third vein curved and very oblique, scutellum bearing four bristles; length, 5 to 6 mm *sociabilis*.
 Fourth vein reaches the wing margin, scutellum bearing six or more bristles; length, 6 to 8 mm *ravida* (p. 403).
 Fourth vein not reaching the wing margin; anterior branch of third vein straight and nearly perpendicular; length, nearly 4 mm *distans*.
50. Posterior femora not ciliate with scales 52
 Posterior femora ciliate with nearly erect scales 51
51. Anterior tibiæ ciliate with scales *distans*.
 Anterior tibiæ not ciliate *labiata*.
52. Abdomen shining or subshining 53
 Abdomen opaque, light gray pollinose, legs slender, base of femora and of tibiæ yellow; length, 4 mm. *stenoptera*.
53. Abdomen depressed, very robust, hind femora furnished with stout black spines on the under side; length, 6 to 7 mm. 54
 Abdomen compressed, slender, hind femora destitute of spines on the under side; legs slender; length, 5 to 6 mm. *sociabilis*.
54. Thorax opaque, costa of wing bearing a long bristle near its base, contact of the fourth posterior cell with the discal equal to the contact of second basal cell with the fourth posterior. *otiosa* (p. 407).
 Thorax wholly shining, costa of wings destitute of a long bristle, contact of fourth posterior cell with the discal nearly twice as long as the contact of the second basal cell with the fourth posterior. *lavigata*.
 Thorax shining except four pollinose vittæ *virgata* (p. 408).
55. Anterior branch of third vein terminates in the costa 56
 Anterior branch of third vein usually terminates in the second, this branch and the small and posterior cross veins bordered with brown, all femora and tibiæ of female ciliate with nearly erect scales. *clausa* (p. 401).
56. Legs of female not ciliate with scales 57
 Legs of female ciliate with nearly erect scales; scutellum bearing only two bristles; length, 3 to 4 mm *distans*.
57. Wings colorless; length, 4 mm. *cornus*.
 Wings brownish; scutellum bearing about twenty bristles, length 5 mm. *luctuosa*.

EMPIS LORIPEDIS, new species.

Male.—Head black, gray pollinose; eyes separated as widely as the posterior ocelli, facets of a uniform size; antennæ black, third joint somewhat over twice as long as the first, slender, tapering gradually to the middle, thence of an equal breadth; style nearly one-third as long as the third joint; proboscis one and one-half times as long as height of head, palpi yellow. Thorax black, opaque gray pollinose, marked with

four dark-brownish vittæ, almost destitute of pile, the bristles black; pleura black, sometimes partly yellowish, bluish gray pollinose, pile in front of halteres black; scutellum black, gray pollinose, bearing two bristles. Abdomen compressed, shining, black; the broad hind margin of each segment laterally yellow, sometimes extending to the anterior edges of the segment, dividing the black color into three vittæ, medio-dorsal and lateral; pile of abdomen sparse, black; venter yellow; hypopygium rather large, ascending, abundant black pilose, middle lamellæ yellow, broadening to the tip; filament very thick at base, then suddenly attenuated and bristle-like, arcuate. Legs, including the coxæ, light yellow; apical half of front tibiæ and extreme apex of the others, front tarsi wholly, apex of first two joints and the whole of the remaining joints on the middle and hind tarsi, usually but not always dark brown; all tibiæ and tarsi furnished with numerous long black pile; on the under side of each hind femur before its apex is an irregular, three-pronged process, and on the inner side of each hind tibia near its base are two processes, one behind the other; just before the basal process the tibia is hollowed out; front metatarsi nearly twice as long and three times as thick as the middle ones, hind metatarsi one-half thicker and one-third longer than the middle ones. Knob of halteres light yellow. Wings dark gray, stigma slightly darker, veins dark brown.

Female.—Like the male, except that the hind femora and tibiæ are destitute of processes, the front metatarsi are not thicker than the middle ones, while the hind metatarsi are much thicker than and fully as long as the front ones; abdomen tapering to the apex.

Types.—Nos. 3163 and 3164, U.S.N.M.; length, 6 to 7 mm. Five males and five females were received from Mr. Charles Robertson and Prof. H. E. Weed.

Locality.—Illinois and Ohio.

EMPIS CLAUSA, new species.

Male.—Head black, subshining, eyes contiguous, upper facets much larger than the lower ones; antennæ black, the third joint quite short, rather broad at base; style two-thirds as long as the third joint; proboscis two and one-half to four times as long as height of head, palpi brown. Thorax, pleura, and scutellum black, opaque, gray pollinose, pile in front of halteres black; scutellum bearing two bristles. Abdomen black, subshining, toward the base more or less tinged with yellowish, its pile black; hypopygium very small, porrect; filament slender, yellow, hidden except on basal half. Legs simple, slender, the middle and hind femora and all the tibiæ furnished with many very long black pile; coxæ yellow, the hind ones brown; femora yellow, the hind ones, except at base, blackish; tibiæ and tarsi blackish, extreme base of each tibia yellowish; hind tibiæ greatly dilated toward the tip, bowing inward at the middle; front metatarsi nearly twice as thick as the

middle ones, hind metatarsi nearly as thick and slightly longer than the front ones. Knob of halteres blackish. Wings hyaline, stigma and a broad border to the anterior branch of the third vein and on the small and the posterior cross veins, dark brown; veins brown, fourth vein obliterated before reaching the wing margin, anterior branch of third vein usually ending in the second vein, closing the first submarginal cell; contact of discal and fourth posterior cells much longer than that of the third and fourth posterior cells.

Female.—Differs from the male in that the legs are wholly brown, compressed, and the upper and under sides of all the femora, outer and inner sides of all the tibiae, and upper sides of the front and hind metatarsi, ciliate with long, nearly erect scales. Base of abdomen never tinged with yellow.

Types.—Nos. 3165 and 3166, U.S.N.M.; length, 4 mm. Five males and five females captured by Mr. Charles Robertson.

Locality.—Illinois.

EMPIS COMANTIS, new species.

Male.—Black; apex of palpi, proboscis except the base and the lower lip, femora except a large portion of the under side, tibiae and tarsi except at apex, yellowish red. First antennal joint twice as long as the second; the third, one and a half times as long as the first; style slender, as long as the third joint; frontal triangle naked; eyes narrowly separated; proboscis three times as long as height of head. Thorax opaque gray pollinose, marked with four blackish vittæ, thickly white and black pilose, the bristles black; pile on each end of pleura, on coxæ and abdomen, mixed black and white; that on venter and sides of abdomen abundant, white. Scutellum white pilose and bearing twelve marginal black bristles. Abdomen shining, nearly destitute of pollen; hypopygium large, ascending; central filament largely yellow, double, free, arcuate. Legs simple, femora thickened, the hind ones over twice as thick as their tibiae; pile and bristles of femora rather numerous and long. Wings slightly brownish, stigma and a spot above base of second vein, dark brown, anterior branch of third vein very oblique and much curved.

Type.—No. 3167, U.S.N.M.; length, 9 mm. Male, collected by Mr. O. T. Baron.

Locality.—Northern California.

EMPIS VALENTIS, new species.

Female.—Differs from *E. comantis* as follows: Femora entirely yellowish, apices of tibiae and whole of tarsi black, third antennal joint twice as long as the first, style less than one-half as long as the third joint. Pile of thorax sparse, black; on each end of pleura, coxæ, abdomen, and venter wholly black; on venter and sides of abdomen very short and sparse. Scutellum destitute of white pile, naked except for the

ten marginal bristles. Abdomen opaque, light gray pollinose, hind margins of the fifth and sixth, and the following segments, wholly shining. Femora not thickened, the hind ones scarcely thicker than their tibiae; pile and bristles of femora minute. Wings hyaline, anterior branch of third vein straight and nearly perpendicular.

Type.—No. 3168, U.S.N.M.; female; length, 9 mm.

Locality.—Northern California.

EMPIS HUMILE, new species.

Male.—Head black, gray pollinose except on oral margin; eyes separated a less distance than width of the lowest ocellus, facets of a uniform size; antennae having the two basal joints brownish yellow, the third black, rather narrow, gradually tapering to the tip, style over one-half as long as the third joint; proboscis from two to three times as long as height of head, palpi light yellow. Thorax, pleura, and scutellum black, opaque grayish pollinose, the rather long pile of thorax and pleura black; thorax with two blackish vittae, scutellum bearing four bristles. Abdomen black, shining, the pile rather long and abundant, black; hypopygium large, lamellae largely yellow, middle ones oblong, slightly tapering to the tip, not longer than the broad upper ones; filament slender, almost bristle-like, arcuate. Legs simple, rather robust; coxae black, femora brownish-yellow, lighter yellow at the base, tibiae and tarsi light yellow, tarsi brownish toward apex; middle and hind legs provided with rather long, stout, black bristles; front and hind metatarsi subequal in size, the middle metatarsi considerably slenderer and only two-thirds as long as either of these. Knob of halteres yellow. Wings brownish-gray, costal cell and border to some of the veins yellowish; stigma and veins dark brown.

Female.—Same as the male, with these exceptions: Prothorax, the lateral margins of the thorax, the scutellum, metanotum, pleura and abdomen yellowish, a black spot above the middle and hind coxae, a transverse one on lower part of the metanotum and sometimes a brownish fascia near or on the hind margin of each abdominal segment except the first. Coxae and legs yellow, hind metatarsi much thicker than the front ones.

Types.—Nos. 3169 and 3170, U.S.N.M.; length, 7 mm. Four males and four females were collected by Mr. Charles Robertson, who writes me that he has repeatedly taken these two forms together "on the same flowers," and believes that they are the opposite sexes of the same species.

Locality.—Illinois.

EMPIS RAVIDA, new species.

Male.—Black, the palpi and halteres yellow, the proboscis (except the lower lip), hypopygium, coxae (largely or wholly), femora, tibiae, and tarsi, reddish yellow. Eyes contiguous, frontal triangle bare.

First antennal joint two and a half times as long as the second, the third joint one and a half times as long as the first, sublanceolate, the style rather slender, nearly half as long as the third joint. Proboscis twice as long as height of head. Thorax opaque, gray pollinose, marked with four brownish black vittæ, the shorter pile whitish, the longer pile and bristles black. Pile on each end of pleura, on coxæ, venter, and sides of abdomen whitish; middle and hind coxæ bearing black bristles. Scutellum bearing from six to eight black bristles. Abdomen opaque, white pollinose, the short pile of the dorsum black. Hypopygium moderately large, obliquely ascending, the central filament not disengaged; no projections on venter in front of hypopygium; coxæ and legs simple, femora destitute of stout spines below, the bristles very short; wings dark gray, stigma very elongated, dark brown, anterior branch of third vein oblique and curved.

Female.—Same as the male with these exceptions: Eyes widely separated; abdominal segments beyond the fifth, shining; apical half of under side of hind femora ciliate with rather short scales and spines.

Types.—Nos. 3171 and 3172, U.S.N.M.; length, 6 to 8 mm. Eleven males and four females in the Museum collection.

Locality.—New Hampshire.

EMPIS TENEBROSA, new species.

Male.—Differs from the female of *E. varida* only as follows: Eyes as widely separated as the posterior ocelli. First two antennal joints reddish, the first scarcely longer than the second, the third twice as long as the first. Entire pile of thorax, pleura, coxæ, venter and abdomen, black. All femora robust, twice as thick as their tibiæ, the middle and hind ones bearing numerous, rather long bristles on their under side.

Type.—No. 3173, U.S.N.M.; length, 6 mm. Three males in the Museum collection.

Locality.—Texas.

EMPIS TERSA, new species.

Male.—Differs from the male of *E. varida* only as follows: Abdomen shining reddish yellow; coxæ, femora, and tibiæ lighter yellowish; first antennal joint twice as long as the second, the third joint twice as long as the first; proboscis three times as long as height of head; thorax destitute of whitish pile, that at each end of the pleura black, each coxæ bearing several black bristles; pile and long bristles of abdomen and venter wholly black. Scutellum bearing four bristles. Abdomen shining, destitute of pollen. Hypopygium small, porrect; the central filament free, filiform, arcuate. Bristles of middle and hind femora rather long.

Female.—Differs from the male in that the proboscis is six times as long as height of head, when bent backward almost reaching the tip of the abdomen.

Types.—Nos. 3174 and 3175, U.S.N.M.; male and female; length, 6 mm.
Locality.—North Carolina.

EMPIS CAPTUS, new species.

Male.—Differs from the male of *E. varida* only as follows: First two antennal joints reddish; first joint only slightly longer than the second, the third three times as long as the first, tapering very gradually to the apex; scutellum bearing only two bristles; dorsum of abdomen brownish pollinose. Hypopygium very large, the filament robust, disengaged, arcuate, compressed and dilated near its apex; on base of upper side of each upper lamella is a low wart-like process, and just outside of this is a backwardly projecting fleshy process bearing on the middle of its under side a backwardly directed black spine, whose tip is even with that of the process from which it springs; below this process is a second, yellow, fleshy, upwardly directed process. Wings hyaline.

Female.—Differs from the male in that the proboscis varies from two to four times as long as height of head; femora and tibiae of middle and hind legs ciliate on each side with rather short black scales and bristles, the scales sparsest on the middle tibiae.

Types.—Nos. 3176 and 3177, U.S.N.M.; length, 5 to 7 mm. Three males and four females in the Museum collection.

Locality.—North Carolina and Georgia.

EMPIS COMPTA, new species.

Female.—Head black, gray pollinose; antennae on two basal joints brown, the third black, narrow, elongate, style one-sixth as long as the third joint; proboscis over twice as long as height of head, palpi brown. Thorax and pleura black, opaque, gray pollinose, thorax marked with four blackish-brown vittae; pile in front of halteres black; scutellum blackish, its apex brown, bearing four bristles. Abdomen on base of segments yellowish-brown, on apex broadly light yellow, seventh and eighth segments and the two anal lamellae, wholly brown; pile of abdomen sparse, yellowish, no fringe of long black bristles near hind margin of any of the segments. Legs slender, destitute of a fringe of scales, yellow, including the coxae; tarsi toward the apex brown; metatarsi of nearly an equal thickness, the hind ones slightly longer than the others. Knob of halteres light yellow. Wings hyaline, stigma wanting, veins light brown, no stout bristle on costa near its base (first submarginal cell closed in one wing, broadly open in the other).

Type.—No. 3178, U.S.N.M.; length, 3½ mm. A female received from Mr. Charles Robertson.

Locality.—Illinois.

EMPIS AVIDA, new species.

Female.—Head black, bluish gray pollinose; antennae brown on the two basal joints, the third black, short, broad, tapering gradually to the tip, style over one-half as long as the third joint; proboscis three

times as long as height of head, palpi yellow. Thorax, pleura and scutellum black, opaque, bluish-gray pollinose; thorax marked with four blackish-brown vittæ, its pile rather numerous but quite short, black; pile in front of halteres white, abundant, fine; scutellum bearing four bristles. Abdomen black, opaque, light bluish-gray pollinose, its pile white, that on sides near base rather long and abundant; no fringe of long black bristles near hind margin of any of the segments. Legs slender, simple, femora destitute of long bristles: coxæ brownish yellow, the hind ones largely blackish; femora, tibiae, and tarsi brownish-yellow, apices of tarsal joints and last joint wholly blackish; middle metatarsi scarcely thicker than the front ones, hind metatarsi nearly twice as thick but scarcely longer than the front ones. Knob of halteres yellowish-white. Wings grayish hyaline, stigma and veins dark brown, no long bristle on costa near its base.

Type.—No. 3179, U.S.N.M.: length, 7 mm. A single female collected by Mr. Charles Robertson.

Locality.—Illinois.

EMPIS LEVICULA, new species.

Male.—Head black, bluish gray pollinose, eyes contiguous; antennæ black, the two basal joints yellow, style over one-half as long as the third joint; proboscis yellowish, black at the apex, over three times as long as height of head, palpi yellow. Thorax, pleura, and scutellum black, opaque gray pollinose; thorax with four brown vittæ, its sparse pile and bristles black; pile of pleura white, scutellum bearing four bristles, the two outer ones very short. Abdomen black, opaque brown pollinose, its sparse pile white; hypopygium small, the filament hidden. Legs slender, destitute of long bristles, dark yellowish, including the coxæ; the tarsi toward the apex black; front metatarsi nearly as long, but only about one-half as thick as the hind ones. Wings whitish hyaline, veins brownish, stigma wanting. Halteres yellow.

Female.—Same as the male, except that the thorax and abdomen are wholly bluish white pollinose.

Types.—Nos. 3180 and 3181, U.S.N.M.: length, 6 to 7 mm. Two males and three females collected by Mr. Charles Robertson.

Locality.—Illinois.

EMPIS MANCA, new species.

Male.—Head black, gray pollinose, eyes separated the width of the lowest ocellus, facets of a uniform size; antennæ black, third joint narrow, elongate, style one-third as long as the third joint; proboscis one and one-half times as long as height of head, palpi yellow. Thorax black, opaque gray pollinose, marked with four black pollinose vittæ, its sparse pile and bristles black; pleura black, light gray pollinose, its pile black; scutellum black, gray pollinose, bearing four black bristles. Abdomen dark brown, hind margin of each segment whitish,

opaque whitish pollinose, its pile or bristles along hind margins of the segments long, black; hypopygium yellowish brown, very large, erect, its pile black; central filament very robust, arcuate, free except toward the apex, its extreme tip dilated. Legs slender, yellow, including the coxæ; on under side of hind femora before the apex is a low swelling, in front of which is a robust, backwardly directed hook, while between the swelling and the apex of the femur on the inner side is a black conical projection fringed near the base behind with one large and two small teeth-like projections; on the front and also on the hind side of the hind tibiæ near the base is a fringe of short black bristles, below which on the inner side of the tibia is a conical projection, at which point the tibia is rather suddenly bent outward; hind metatarsi slightly thicker, but shorter, than the front ones. Halteres yellow. Wings grayish hyaline, stigma and veins brown, a long bristle on costa near its base.

Female.—Same as the male, except that the front is slightly broader, the abdomen blackish, light gray pollinose, and the hind legs simple, but much thicker than the others.

Types.—Nos. 3182 and 3183, U.S.N.M.; length, 4 to 5 mm. Five males and eight females, taken by the writer in March.

Locality.—Southern California.

EMPIS OTIOSA, new species.

Male.—Head black, gray pollinose, eyes separated as widely as the posterior ocelli, facets of a uniform size; antennæ black, third joint two and one-half times as long as the first, rather narrow, style one-third as long as the third joint; proboscis two and a half times as long as height of head, palpi yellow. Thorax black, opaque gray pollinose, marked with two darker vittæ, its sparse pile and bristles black; pleura black, gray pollinose, its pile black; scutellum gray pollinose, bearing four bristles. Abdomen black, depressed except toward the apex, subshining, its pile rather abundant and long, black; hypopygium rather small, middle lamella longer than the upper, rounded on the lower side; filament slender, arcuate, yellow. Legs simple, very robust, femora nearly twice as thick as their tibiæ, hind femora one-third longer than the middle ones; coxæ black, femora dark brown, yellowish at base and apex, the hind ones sometimes wholly yellowish, tibiæ and tarsi light yellow, apex of the latter brown; front metatarsi unusually large, nearly twice as long and as thick as the middle ones, one-half thicker and one-third longer than the hind metatarsi. Knob of halteres light yellow. Wings hyaline, stigma pale brownish, veins dark brown.

Female.—Same as the male, except that the tibiæ and tarsi are darker, the yellow being replaced with reddish; the femora are usually reddish and are more slender; the hind ones are nearly twice as long as the middle ones; front metatarsi more slender and one-half longer than the middle ones, also more slender and slightly longer than the hind ones; wings brownish gray.

Types.—Nos. 3184 and 3185, U.S.N.M.; length, 6 to 7 mm. Four males and three females were received from Mrs. A. T. Slosson and Mr. Charles Robertson.

Locality.—Illinois and Connecticut.

EMPIS GULOSA, new species.

Female.—Head black, bluish gray pollinose; antennæ black, third joint broad at base, rapidly tapering to the apex, style slender, more than one-half as long as the third joint; proboscis one-half longer than height of head, palpi brown. Thorax black, opaque gray pollinose, marked with four dark brownish vittæ; its very short, sparse pile black; pleura black, bluish gray pollinose, pile in front of halteres black; scutellum black, gray pollinose, bearing four bristles. Abdomen black, opaque brownish pollinose, that on the hind and lateral margins of the segments light gray: on the hind margins of the first three segments toward the sides is a fringe of rather long black bristles, most developed on the second segment. Legs slender, simple, yellow, including the coxæ; tarsi toward the apex brown; femora destitute of long bristles; middle metatarsi slightly thicker but shorter than the front ones; hind metatarsi much thicker than the middle ones, subequal in length to the front ones. Knob of halteres yellowish-white. Wings grayish, stigma nearly obsolete, veins dark brown, no long bristles on costa near its base.

Type.—No. 3186, U.S.N.M.; length, 7 mm. A single female specimen collected by Mr. Charles Robertson.

Locality.—Illinois.

EMPIS VIRGATA, new species.

Male.—Black in all its parts except the whitish knob of halteres and pulvilli; all pile and bristles also black. Eyes separated by an interval narrower than the lowest ocellus; third joint of antennæ sublanceolate; the style nearly one-fourth as long as that joint. Proboscis slightly over twice as long as height of head. Thorax subshining, lightly gray pollinose and marked with three shining black vittæ; pleura grayish black pollinose; scutellum shining, bare except the six marginal bristles and a few marginal hairs. Abdomen depressed, shining; hypopygium rather small, central filament hidden; on the under side of the fifth segment is a large, ovoid process, extending the entire length of the segment, its posterior end rather thickly beset with short, stout black bristles. Legs slender, front metatarsi one-half thicker and one-half longer than the middle ones, noticeably longer and thicker than the hind ones. Wings pale brown, stigma darker brown, all the veins perfect.

Type.—No. 3187, U.S.N.M.; length, 8 mm. A single specimen collected by Prof. O. B. Johnson.

Locality.—Washington.

Genus MICROPHORUS, Macquart.

MICROPHORUS RAVIDUS, new species.

Male.—Black, only the halteres whitish. Eyes contiguous, third antennal joint elongate, conical, the apical style slightly longer than the third joint; proboscis nearly perpendicular, from two-thirds as long to as long as height of head. Thorax, pleura, scutellum, and abdomen opaque gray pollinose, the bristles black, scutellum bearing four bristles; hypopygium rather large, bent around against the right side of the abdomen. Wings grayish hyaline, slightly smoky along the veins, stigma and veins brown, no vein issues from the anal cell: this cell is nearly as long as the second basal, the vein at its apex arcuate and not parallel with the hind margin of the wing.

Female.—Eyes broadly separated; abdomen very blunt at apex; otherwise as in the male.

Types.—Nos. 3188 and 3189, U.S.N.M.; length, 2 mm. Nine males and twelve females collected by the writer in March and April.

Locality.—Southern California.

Differs from the description of *Microphorus drapetoides*, Walker (the only other described North American species), by its hyaline instead of dark brown wings.

Genus MYTHICOMYIA, Coquillett.

ANALYTICAL KEY TO THE SPECIES OF MYTHICOMYIA.

- Tibiae, halteres, first vein and second section of costa, yellow *rileyi*.
 Tibiae, except at base, black; upper side of knob of halteres also black, first vein
 and costa brown *tibialis* (p. 409).

MYTHICOMYIA TIBIALIS, new species.

Male.—Black, the frontal triangle, face, cheeks, humeri, and each hind corner of thorax, whitish; halteres, except upper side of the knob, hypopygium largely, knees and base of hind metatarsi, yellowish. Head, sides of thorax, pleura and scutellum, gray pollinose, abdomen deep velvet black; pile of head and body whitish. Wings wholly hyaline, veins black, the auxiliary and bases of the other veins yellowish. On the under side of the hind metatarsi, before its middle, is a rounded notch, in front of which is a rounded process.

Type.—No. 3190, U.S.N.M.; length, $3\frac{1}{2}$ mm. A single male specimen captured by the writer in July.

Locality.—Los Angeles County, California.

Genus RHAMPHOMYIA, Meigen.

Rhamphomyia crassinervis, Loew, is the other sex of *R. sordida*, Loew; and his *R. unguolata* is the other sex of *R. umbilicata*, Loew.

The following have not been recognized by me, and the descriptions

are too brief to permit of giving them a place in the accompanying table: *agasicles*, *anaxo*, *cilipes*, *cophas*, *dana*, *daria*, *ecetra*, *ficana*, *flavirostris*, *nigrita*, *scolopacea*, and *tristis*.

Since the publication of Osten Sacken's Catalogue, Bigot¹ has published descriptions of four North American species belonging to the present genus. His *R. morrisoni* appears to be synonymous with *R. rara*, Loew; *R. pachymera*, Bigot, is too imperfectly described to admit it in the table given below; the names *nigrita* and *geniculata*, which he uses for two of his species, are preoccupied, and Bigot's descriptions had therefore better be canceled.

RHAMPHOMYIA RAVA, Loew.

Dr. Loew describes the wings in both sexes of this species as being somewhat reddish brown. In a large series of specimens that I have examined, captured in the same locality, the males agree in all respects with Dr. Loew's description of *R. rara*, but the females invariably have the wings much lighter colored at the base than at the apex. I strongly suspect that Loew founded his description on males of *R. rara* and females of my new species *R. ravida*, which closely resembles *R. rara*, differing chiefly in the male genitalia and the uniformly brown wings of the female.

RHAMPHOMYIA BASALIS, Loew

Dr. Loew describes the female only. The National Museum contains six males and as many females from the White Mountains, New Hampshire, all of them taken by the same collector (Morrison), and evidently belonging to this species. In size, structure of antennæ, and general coloring, the two sexes are alike, but they differ widely in the shape and color of the wings and in the structure of the legs; in the female the wings are unusually broad, brownish, the base hyaline; while in the male they are narrow and wholly hyaline. In the female the legs are destitute of processes and excisions; in the male each hind femur is hollowed out on the under side just before the apex, and before this hollow is a rather large rounded process; each hind tibia is also hollowed out on the inner side at a point opposite that in the femur; thus when the leg is folded, a hollow space is formed between each femur and its tibia; the outer edge of the hollow in the tibia is fringed with flattened setæ.

ANALYTICAL KEY TO THE SPECIES OF RHAMPHOMYIA.

1. Thorax, including the pleura, wholly black.....	9
Thorax, or at least the pleura, more or less yellow or reddish.....	2
2. Dorsum of thorax marked with black.....	4
Dorsum of thorax wholly yellowish, destitute of black markings.....	3

¹ Bull. Soc. Ent. France, 1887, pp. 141-142. Ann. Soc. Ent. France, 1889, pp. 132-134.

3. Abdomen, tibiae, and knob of halteres yellow, legs of female ciliate with nearly erect scales..... *testacea*.
Abdomen, tibiae, and knob of halteres black..... *pectoris* (p. 420).
4. Thorax marked with three black vittae (median and lateral); wings, abdomen and knob of halteres blackish, legs of female not ciliate with scales... 8
Thorax marked with only one black vitta (median)..... 5
Thorax marked with two black vittae, abdomen largely black, legs of female not ciliate with scales..... *vittata*.
5. Thorax shining 6
Thorax opaque, hypopygium of male scarcely longer than the preceding segment; under side of middle and hind femora of female, and both sides of middle and hind tibiae, ciliate with scales..... *colorata* (p. 420).
6. Wings, abdomen and knob of halteres blackish, hypopygium of male erect, nearly one-half as long as the abdomen 7
Wings hyaline, abdomen yellow, hypopygium small, porrect..... *sellata*.
7. Hypopygium of male bearing a tooth and notch on hind margin of lower lamella; both sides of all femora and tibiae of female, and upper side of all metatarsi, ciliate with scales *fumosa*.
Hypopygium destitute of a tooth and notch on the lower lamella, both sides of all femora and tibiae of female, and upper side of only the hind metatarsi, ciliate with scales..... *longicauda*.
8. Pleura and venter partly blackish; length, 4 mm..... *pulchra*.
Pleura and venter wholly yellowish; length, 6 mm..... *glabra*.
9. Femora black or dark brown 49
Femora largely or wholly yellowish..... 10
10. Middle, or at least the hind coxae, black or dark brown..... 11
Middle and hind coxae yellowish..... 22
11. Males 12
Females..... 16
12. Eyes contiguous or nearly so 13
Eyes distinctly separated, abdomen wholly black or brown; knob of halteres whitish; length, 4 to 5 mm..... 15
13. Central filament of hypopygium free, very flexuous toward the apex..... 14
Central filament free except at apex, not flexuous nor fractured; middle lamellae yellow, not produced upward in a long conical process beyond apex of the black upper lamellae; length, 8 mm..... *rara* (p. 410).
Central filament hidden except on its lower one-third; abdomen depressed, opaque; middle lamellae of hypopygium beyond apex of the upper one not produced in a conical process; length, 8 mm..... *ravida* (p. 418).
14. Abdomen wholly black, shining, central filament not fractured; length, 6 mm..... *pulla*.
Abdomen more or less yellow, compressed, shining, central filament fractured toward the base, a brown cloud near forking of second and third veins, hind femora thickened; length, 5 mm..... *rustica*.
15. Hind tibiae with a large swelling near the base, central filament of hypopygium with a U-shaped flexure near its base; inhabits California *loripedis* (p. 419).
Hind tibiae destitute of swellings; inhabits Illinois..... *mutabilis*.
16. Abdomen opaque, knob of halteres yellowish..... 17
Abdomen shining..... 18
17. Length, $8\frac{1}{2}$ mm.; antennal style about one-third as long as the third joint, wings brownish..... *ravida* (p. 418).
Length, 5 mm.; antennal style one-fifth as long as the third joint, wings hyaline..... *mutabilis*.

18. Abdomen wholly black or dark brown..... 19
 Abdomen yellowish, at least on hind margins of the segments; hind femora
 thickened; length, 5 mm.; inhabits New Hampshire..... *rustica*.
19. Knob of halteres yellowish..... 20
 Knob of halteres and antennæ blackish, hind femora reddish..... *macilentæ*.
20. Inhabits California; two basal joints of antennæ black, base of hind femora
 yellowish..... 21
 Inhabits the Atlantic States; two basal joints of antennæ yellowish, base
 of hind femora black..... *pulla*.
21. Antennal style one-half as long as the third joint, wings brownish
 californica (p. 420).
 Antennal style one-fourth as long as the third joint, wings hyaline *loripedis* (p. 419).
22. Males..... 23
 Females..... 37
23. Eyes contiguous or nearly so..... 24
 Eyes distinctly separated, thorax opaque or only subshining..... 33
24. Abdomen, at least on the dorsum, black..... 28
 Abdomen yellowish..... 25
25. Hind femora slender, hind tibiæ and front tarsi, except at apex, yellow..... 26
 Hind femora thickened, pile of thorax black, basal half of hind tibiæ and
 front tarsi brown; proboscis as long as height of head; length,
 5 mm..... *dimidiata*.
26. Pile and bristles of thorax black, filament of hypopygium very flexuous, middle
 lamellæ not tapering to the apex, the pile black..... 27
 Pile and bristles of thorax yellow, filament not flexuous, middle lamellæ taper-
 ing to the apex; length, 3 mm..... *arcuata* (p. 421).
27. Proboscis scarcely longer than height of head, wings hyaline, facets of eyes
 of a uniform size; length, 4 mm..... *debilis*.
 Proboscis three times as long as height of head, wings brownish-gray; upper
 facets much larger than the lower; length, 5 to 7 mm. *amplipedis* (p. 422).
28. Filament of hypopygium free, except sometimes its extreme apex..... 30
 Filament hidden except on its lowest one-half or less..... 29
29. Thorax and abdomen shining; length, 6 mm..... *gracilis*.
 Thorax and abdomen opaque; middle lamella of hypopygium beyond apex
 of upper lamella produced in a high, conical process; length, 8 to
 10 mm..... *quinquelineata*.
30. Filament very flexuous toward its apex, not fractured, hind femora slender. 31
 Filament slightly undulate but not flexuous, middle lamella beyond tip of
 upper one produced in a rounded lobe; length, 9 mm..... *rara* (p. 410).
31. Upper lamella of hypopygium destitute of a fleshy process, abdomen shining. 32
 Upper lamella greatly swollen, and below its apex bearing a cylindrical,
 fleshy, bristly process; thorax and abdomen opaque..... *tersa* (p. 422).
32. Thorax shining, venter blackish; length, 3 mm..... *compta* (p. 423).
 Thorax opaque, venter yellow, abdomen compressed; length, 4 mm.. *lateiventris*.
33. Filament of hypopygium hidden except its lower part..... 34
 Filament free, very sinuous toward its apex, wings whitish-hyaline, scutel-
 lum bearing four bristles; length, 4 mm..... *candicans*.
34. Abdomen opaque, gray pollinose and long yellow pilose..... 35
 Abdomen shining, depressed, its pile black, palpi yellowish; length, 5 mm.
 *macilentæ*.
35. Wings brownish..... 36
 Wings grayish, third antennal joint narrow, style very short, hind tibiæ
 bearing very long yellow pile; length, 4 mm..... *longipennis*.
36. Length, 6 mm.; third antennal joint narrow, style robust, hypopygium small,
 its filament very thick, femora robust, setulose below..... *gilvipes*.

- Length, 4 mm.; third antennal joint broad, style minute, hind tibiae and metatarsi bearing many long pile, hypopygium large, ascending *liturata*.
37. Abdomen, at least dorsally, black or dark brown 39
Abdomen yellowish, wings brownish 38
38. Proboscis at least three times as long as height of head, under side of middle and hind femora ciliate with scale-like setae; length, 5 to 7 mm *amplipedis* (p. 422).
Proboscis scarcely exceeding height of head; length, 4 mm *debilis*.
39. Hind legs bearing nearly erect scales, discal and posterior cells normal; length, 4 mm 40
Hind and other legs destitute of such scales 41
40. Middle and hind femora ciliate with scales on the under side, hind tibiae not ciliate *effera* (p. 427).
Middle and hind femora destitute of scales, both sides of hind tibiae ciliate, basal third of wings hyaline, the remainder brown *basalis* (p. 410).
41. Discal and posterior cells normal, abdomen not silvery pollinose 43
Discal cell unusually long, sending only two veins to the wing margin; length, 4 mm 42
42. Abdomen silvery white pollinose *liturata*.
Abdomen not silvery pollinose *longipennis*.
43. Wings marked with a black spot in the submarginal and first posterior cells only; thorax shining; length, 6 mm *gracilis*.
Wings with at least the posterior cells blackish brown; thorax opaque 44
Wings destitute of such spots, uniform in coloring; length, 4 to 6 mm 45
44. Brown near apex of wings in the form of a cloud which does not invade the submarginal cell *quinquelineata*.
Brown covers apex of wing, invading the submarginal cell, basal half of wings yellowish gray *rava* (p. 410).
Brown covers apical half of wings, the basal half whitish hyaline; venter yellow; length, 5 mm *nasoni* (p. 423).
45. Venter black 46
Venter partly yellow, pile in front of halteres black, middle and hind tibiae dark brown *luteiventris*.
46. Thorax opaque 47
Thorax shining, halteres yellow, pile in front of them black, third antennal joint broad at base, hind femora slender; Californian species
californica (p. 420).
47. Knob of halteres yellowish 48
Knob of halteres dark brown, pile in front of halteres black, third antennal joint linear; hind femora thickened, black setulose below *macilenta*.
48. Wings grayish hyaline, hind femora slender, pile in front of halteres white, third antennal joint broad at the base *americana*.
Wings grayish, veins brown, hind femora thickened, black setulose below, third antennal joint narrow; length, 6 mm *gilripes*.
Wings whitish, veins except the costa and first vein whitish; length, 4 mm. *caudicans*.
49. Wings brown, the base hyaline or yellowish; length, 3 to 5 mm 50
Wings uniformly hyaline or grayish 54
Wings uniformly brown or blackish 107
50. Discal and posterior cells normal 51
Discal cell unusually long, sending only two veins to the wing margin, abdomen silvery pollinose at base; length, 4 mm.; Californian species
ampliocella (p. 431).
51. Knob of halteres yellowish 52
Knob of halteres blackish 53

52. Inhabits California; both sides of hind femora and tibiæ, under side of middle femora and outer side of middle tibiæ of female, ciliate with nearly erect scales; length, 3 mm..... *luctuosa*.
 Inhabits Nebraska; all femora and tibiæ of female ciliate with scales.. *levigata*.
 Inhabits Illinois; eyes of male contiguous, filament of hypopygium free, slender, not flexuous, pile in front of halteres black, scutellum bearing four bristles..... *polita*.
 Inhabits the Atlantic States; legs of female not ciliate with scales; eyes of male contiguous; filament of hypopygium hidden..... *angustipennis*.
53. Middle and hind femora and hind tibiæ of female ciliate with nearly erect scales; eyes of male contiguous; filament of hypopygium slender, not flexuous; inhabits the Atlantic States..... *brevis*.
 Middle and hind tibiæ of male bearing black setæ, filament of hypopygium hidden, eyes of male contiguous; inhabits the Atlantic States.. *pectinata*.
 Middle and other legs of females destitute of nearly erect scales; eyes of male contiguous; filament of hypopygium very thick, hidden except at base; inhabits the Atlantic States..... *umbrosa*.
 Middle and other femora and tibiæ not ciliate with scales; inhabits California..... *bifilata* (p. 424).
54. Thorax wholly shining, not pollinose; knob of halteres yellowish; discal cell and veins issuing from it normal; eyes of male contiguous..... 55
 Thorax more or less opaque..... 58
55. Filament of male hypopygium hidden, except sometimes on its basal third.. 56
 Filament free, slender, not flexuous, upper facets of eyes of male much larger than the lower; his hind metatarsi much thicker than the others; both sides of middle and hind femora and hind tibiæ of female, also outer side of her middle tibiæ, ciliate with nearly erect scales; wings grayish, stigma black; length, 2 mm *nana*.
56. Abdomen shining; length, 3 to 4½ mm..... 57
 Abdomen opaque, wings whitish, stigma obsolete, third antennal joint short and broad, style minute; length, 2 mm *pusio*.
57. Scutellum bearing four bristles, pile in front of halteres black, outer side of middle tibiæ of male bearing numerous bristles *mingtus*.
 Scutellum bearing only two bristles, pile in front of halteres whitish, outer side of middle tibiæ of male bearing only two bristles, both sides of hind femora and under side of middle femora of female ciliate with nearly erect scales *ciliata*.
58. Knob of halteres yellowish 59
 Knob of halteres blackish..... 92
59. Discal cell normal 62
 Discal cell united with the first and second posterior cells, legs of female destitute of nearly erect scales; pile of body whitish, third antennal joint broad, bases of first two tarsal joints white *incompleta*.
 Discal cell prolonged nearly to the wing margin, legs of female not ciliate with scales; length, 3 to 4 mm 60
60. Two veins issue from the discal cell..... 61
 Three veins issue from the discal cell, the cross vein at its apex angular, scutellum bearing two bristles *irregularis*.
61. Wings grayish, vein at apex of discal cell sinuous, never angular..... *limbata*.
 Wings hyaline at base, the apex dark gray, vein at apex of discal cell angular near its lower end; inhabits California *ampliocella* (p. 431).
62. Fourth vein reaches the wing margin..... 67
 Fourth vein obliterated before reaching the wing margin, legs of female destitute of erect scales; length, 2 to 3 mm..... 63
63. Males..... 64
 Females 65

64. Fourth vein reaches half way from discal cell to the wing margin, wings whitish, eyes narrowly separated *umbilicata*.
 Fourth vein reaches less than half way from discal cell to the wing margin, wings hyaline but not whitish, whole of costal vein brown *soccata*.
 Fourth vein reaches three-fourths the distance from discal cell to the wing margin, wings whitish, eyes contiguous..... *mauca* (p. 427).
65. With a black dot at tip of fourth vein..... 66
 Without such a dot; fourth vein reaches three-fourths the distance from discal cell to the wing margin..... *mauca* (p. 427).
66. Fourth vein reaches only one-fourth the distance from discal cell to the wing margin, the black dot at its tip small *umbilicata*.
 Fourth vein longer, the dot larger *unimaculata*.
67. Males 68
 Females 82
68. Eyes contiguous or nearly so 69
 Eyes distinctly separated, pile of abdomen yellowish 79
69. Filament of hypopygium hidden..... 70
 Filament of hypopygium not wholly hidden..... 71
70. Front tibiæ dilated and thickly pilose on inner side; length, 6 mm. *abditæ* (p. 430).
 Front tibiæ not dilated, pile on inner side very short; scutellum bearing about fourteen bristles; inhabits California; length, 10 mm. *scutellaris* (p. 429).
71. Hind legs destitute of processes 73
 Hind femora near apex on under side, and hind tibiæ near base, bearing a rounded process; length, 4 mm..... 72
72. Process on hind femora situated at extreme apex of the femur and opposite a hollow in the hind tibia..... *valga* (p. 428).
 Process situated before the apex, and in front of the hollow in the hind tibia *basalis* (p. 410).
73. Filament of hypopygium not flexuous 74
 Filament very flexuous toward apex, not suddenly thickened at base, abdomen shining; length, 6 mm..... *flexuosa* (p. 433).
74. Base of filament of hypopygium very thick, then suddenly attenuated..... 75
 Base of filament not thickened 76
75. Pile of thorax, abdomen, and legs yellowish, filament of hypopygium nearly twice as long as the hind femora; length, 4 mm..... *piligeronis* (p. 432).
 Pile of thorax, abdomen, and legs black, abdomen white pollinose; upper lamellæ of hypopygium acute, median ones larger, obtuse; length, 3 mm. *leucoptera*.
76. Palpi black 77
 Palpi yellow, under side of seventh abdominal segment prolonged forward in two short processes; abdomen opaque, its pile yellowish; filament of hypopygium thick, hidden at the tip; length, 5 mm..... *rara*.
77. Length, 3 mm.; Eastern species 78
 Length, 9 mm.; abdomen shining, its pile black; California species
fimbriata (p. 429).
78. Thorax opaque, filament of hypopygium very slender *priapulæ*.
 Thorax subshining, filament rather thick; on each side of lower portion of hypopygium a shining, forwardly directed process; scutellum bearing four bristles, hind metatarsi twice as thick as the others *exigua*.
79. Filament of hypopygium free, slender, proboscis scarcely longer than height of head 80
 Filament hidden, intercalary vein not united with the fourth vein, penultimate section of fifth vein much longer than the ultimate section; first joint of middle tarsi slender, much longer than the second; length, 4 mm..... *sordida*.
80. Intercalary vein not united with the fourth..... 81
 Intercalary vein at base united with the fourth vein; length, 4 mm. *conjuncta*.

81. Second joint of middle tarsi longer than the first one, each thicker than any of the others; length, 3 mm *frontalis*.
 Second joint shorter than the first; neither of them thicker than those of the hind tarsi; length, 5 mm *irregularis*.
82. Femora and tibiae destitute of erect scales. 87
 Femora, or at least the under side of the hind ones, ciliate with nearly erect scales 83
83. Middle and hind femora bearing such scales 84
 Middle femora destitute of scales, antennal style one-sixth as long as the third joint; length, $2\frac{1}{2}$ mm. *parva* (p. 433).
84. Length of body, under 6 mm. 85
 Length, 9 mm.; scales of legs confined to under side of middle and hind femora; thorax subshining and marked with three deep black vittæ; California species. *fimbriata* (p. 429).
85. Middle and hind femora bearing scales on under side only 86
 Middle and hind femora ciliate on both sides, antennal style one-fifth as long as the third joint; length, $4\frac{1}{2}$ mm. *abditata* (p. 430).
86. Antennal style one-fourth as long as the third joint, tibiae destitute of scales; inhabits Colorado; length, 4 mm *effera* (p. 427).
 Antennal style one-half as long as the third joint, hind tibiae bearing nearly erect scales; California species; length, $5\frac{1}{2}$ mm. *stylata* (p. 432).
87. Palpi black 88
 Palpi yellow, thorax and abdomen opaque, pile of abdomen yellowish; length, 5 mm *rara*.
88. Thorax opaque or nearly so. 89
 Thorax shining, three vittæ and the sides white pollinose; abdomen shining, its pile yellowish; length, 7 mm. *virgata* (p. 430).
89. Antennal style not over one-fifth as long as the third joint. 90
 Antennal style nearly one-half as long as the third joint; contact of discal and fourth posterior cells much shorter than that of the third and fourth posterior cells; length, 6 mm. *flexuosa* (p. 433).
90. Penultimate section of fifth vein much shorter than the ultimate section; front and middle metatarsi subequal in size, much smaller than the hind ones. 91
 Penultimate section of fifth vein much longer than the ultimate section; length, $4\frac{1}{2}$ mm. *sordida*.
91. Thorax opaque, bluish gray pollinose, vein issuing from anal cell distinct, reaching the wing margin; pile in front of halteres whitish; length, 4 mm *frontalis*.
 Thorax opaque, gray pollinose, pile in front of halteres black; length, 3 mm. *priapulæ*.
 Thorax subshining, lightly grayish-black pollinose, vein issuing from anal cell indistinct, not reaching the wing margin; length, 3 mm *exigua*.
92. Males; discal and posterior cells normal. 93
 Females 102
93. Eyes contiguous or nearly so; length, 3 to 5 mm. 94
 Eyes distinctly separated 100
94. Filament of hypopygium not flexuous, sometimes hidden. 95
 Filament flexuous toward apex, not suddenly thickened at base; abdomen densely grayish-white pollinose; length, 3 mm *nigricans*.
95. Posterior metatarsi never globose. 96
 Posterior metatarsi very thick, globose, wings gray; length, $2\frac{1}{2}$ mm. *impedita*.
96. Abdomen not grayish-white pollinose. 97
 Abdomen opaque grayish-white pollinose; a long seta issuing from apex of lower lamella of hypopygium (not the usual central filament); Californian species *bifilata* (p. 424).

97. Thorax wholly opaque gray pollinose..... 98
 Thorax shining, two vittæ and the sides gray pollinose, a long seta (not the central filament) issues from apex of lower lamella of hypopygium;
 California species *duplicis* (p. 424).
 Thorax and abdomen velvet black, filament hidden..... *expulsa*.
98. Pile of abdomen short, black..... 99
 Pile of abdomen rather long, yellowish; filament of hypopygium bristle-
 like *arida* (p. 425).
99. Filament of hypopygium suddenly thickened at base: upper lamellæ as
 broad as long..... *setosa* (p. 426).
 Filament slender, upper lamellæ also slender..... *clavigera*.
100. Abdomen opaque..... 101
 Abdomen shining, filament of hypopygium very thick at base, third anten-
 nal joint slender; length, 5 mm..... *longicornis*.
101. Hypopygium large, erect, black pilose, upper lamellæ oblong, the median
 ones broad, third antennal joint broad; length, 4 mm..... *limbata*.
 Hypopygium subglobose, long yellow pilose; length 3 mm ? *hirtipes*.
102. Middle and hind femora on each side bearing nearly erect scales..... 103
 Middle and other legs destitute of scales..... 104
103. Hind tibiæ on both sides bearing nearly erect scales; inhabits Colorado;
 length, 3 mm..... *otiosa* (p. 425).
 Hind tibiæ destitute of scales; thorax wholly opaque; inhabits the Atlan-
 tic States; length, 4 mm ? *hirtipes*.
104. Front metatarsi as long as, and thicker than, the front tibiæ; length, 3¾ mm.
rufirostris.
 Front metatarsi two-thirds as long as, and more slender than, the front tibiæ. 105
105. Antennal style not over one-sixth as long as the third joint, hind tarsi less
 than twice as thick as the middle ones..... 106
 Antennal style one-fourth as long as the third joint, hind metatarsi nearly
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RHAMPHOMYIA RAVIDA, new species.

Male.—Head black, grayish-brown pollinose, eyes very narrowly separated, the interval being narrower than the lowest ocellus; facets of nearly a uniform size; antennæ black, the third joint lanceolate; style over one-third as long as the third joint; proboscis slightly longer than the head, palpi dark yellowish. Thorax, pleura, and scutellum black, opaque, grayish brown pollinose; thorax marked with three dark brown vittæ, its pile rather abundant and quite long, whitish, or brown, and black; pile above front coxæ yellowish, that in front of halteres yellowish or black; scutellum bearing about fourteen marginal bristles; abdomen depressed, black, opaque brownish gray pollinose, its pile quite abundant and long, yellowish and black; on each side of the seventh segment is a shining black vitta, marking the division into two parts of the dorsal and ventral portions of this segment, the vitta being on the lower half; hypopygium rather large, ascending; filament hidden, except the posterior side of its lower third. Coxæ and trochanters black, gray pollinose, sometimes yellowish at apices; femora

and tibiae light yellow, hind femora much thicker than the others, the under side beset with stout black spines; tarsi yellowish, toward the apex brown; front and middle metatarsi of an equal size, the hind ones much thicker and almost one-half longer than the others. Knob of halteres yellowish. Wings brownish gray, stigma brown, veins dark brown, fourth vein entire.

Female.—Same as the male, with these exceptions: Front and middle femora darker, more brownish, tibiae and tarsi brownish. Wings nearly uniform light brown.

Types.—Nos. 3191 and 3192, U.S.N.M.; length, 8 to 9 mm. Five males and one female in the Museum collection.

Locality.—Illinois, Texas, and New Mexico.

RHAMPHOMYIA LORIPEDIS, new species.

Male.—Head black, eyes broadly separated, the interval nearly as broad as the face; antennae black, first joint twice as long as the second, third joint three times as long as the first, tapering quite rapidly to the middle, then of nearly an equal width; style one-fourth as long as the third joint; proboscis one and a half times as long as height of head, palpi yellow. Thorax black, subshining, lightly gray pollinose, the sparse pile and bristles black; pleura black, gray pollinose, pile in front of halteres white. Scutellum black, bearing four bristles. Abdomen shining blackish brown, its pile long and rather abundant, white; hypopygium rather small, ascending; filament free, very thick on basal half, then abruptly becoming slender and bowed downward in the form of a U, the outer prong of which is prolonged and slightly undulating. Legs yellow, coxae largely black, hind femora toward the apices, hind tibiae except at bases, and apices of tarsal joints, brown; hind femora considerably swollen before the apices and on the under side of the apical third bearing stout black bristles; hind tibiae greatly thickened toward the apices, and on the inner side near the base is a large swelling bearing short black bristles; below this swelling the tibia bends forward and slightly outward; front metatarsi slightly thicker than the middle ones, hind metatarsi slightly thicker but not longer than the front ones. Halteres yellowish white. Wings hyaline, stigma and veins brownish, fourth vein entire.

Female.—Same as the male, with these exceptions: Venter yellow on the fifth and sixth segments, sometimes a yellow spot on sides of the third and fourth. Hind femora scarcely thickened, tibiae destitute of a swelling near the base; front metatarsi somewhat thicker than the hind ones.

Types.—Nos. 3193 and 3194, U.S.N.M.; length, 4 to 5 mm. Two males and three females, collected by the writer in March and April.

Locality.—Southern California.

RHAMPHOMYIA CALIFORNICA, new species.

Female.—Head shining black, antennæ black, first joint one and a half times as long as the second, third joint two and a half times as long as the first, on its under side tapering quite rapidly to the middle, then of nearly an equal width; style one-half as long as the third joint; proboscis one and a half times as long as height of head, palpi reddish-yellow. Thorax black, subshining, the pollen very light, sparse pile and bristles black; pleura and scutellum the same, scutellum bearing four bristles. Abdomen shining black, tapering at the tip, its sparse pile black. Legs simple, not squamulate, reddish-yellow, coxæ black, tarsi brownish toward apices, hind metatarsi much thicker and longer than the others, metatarsi less than two-thirds as long as their tibiae. Halteres yellow, the stalk reddish. Wings uniformly brown, fourth vein entire.

Type.—No. 3195, U.S.N.M.; length, 6 mm. Collected by O. T. Baron.

Locality.—California.

RHAMPHOMYIA PECTORIS, new species.

Male.—Head blackish brown, shining; eyes contiguous, the upper facets very much larger than the lower ones; antennæ brown, first joint twice as long as the second (the third wanting); proboscis slightly longer than height of head, palpi dark brown. Thorax, including the pleura, scutellum, and metanotum, shining dark yellow, unmarked, pile and bristles black, scutellum bearing four bristles. Abdomen shining brownish black, the sixth segment reddish; pile rather long and quite abundant, mostly black; hypopygium small, porrect, central filament slender, arcuate, free; each intermediate lamella bears just above its apex a slender, fleshy, very hairy process, nearly as long as the lamella, projecting backward. Legs simple, dark brown, the coxæ and bases of all the femora yellow, most extended on the front femora; trochanters yellow, a small black spot on apex of each; bases of hind tarsal joints, except the first and last, yellow; metatarsi less than one-half as long as their tibiae; front and hind metatarsi much thicker than the middle ones. Halteres black. Wings brown, lighter behind the fourth vein, the latter entire.

Type.—No. 3196, U.S.N.M.; length, 5 mm. Collected by Mr. E. A. Schwarz.

Locality.—St. Catherine Island, Georgia.

RHAMPHOMYIA COLORATA, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennæ brownish yellow, third joint broad at base, tapering quite rapidly on the under side to the middle, then of nearly an equal width; style one-fourth as long as the third

joint; proboscis one-half longer than height of head, palpi yellow. Thorax black; the lateral margins, humeri, and prothorax brown, opaque, grayish-brown pollinose; its sparse pile and bristles black; pleura mottled yellowish and dark brown, a black spot above the middle and hind coxæ, pile of pleura black; scutellum black, grayish-brown pollinose, bearing four bristles. Abdomen compressed, brown, lightly white pollinose, subshining, its pile black; hypopygium very small, central filament hidden. Legs slender, simple, the femora and coxæ light yellow, the tibiae and tarsi brownish; front tibiae before the middle on the inner sides dilated, and thickly ciliate on the apical two-thirds with short black and brown setæ; front metatarsi considerably thicker and somewhat longer than the middle ones; hind metatarsi thicker and one-third longer than the front ones. Knob of halteres pale yellow. Wings uniformly pale brown, veins and stigma dark brown, fourth vein entire.

Female.—Same as the male, with these exceptions: Abdomen depressed, tapering behind, upper and under sides of the middle and hind femora, outer and inner sides of the middle and hind tibiae, and inner sides of the front tibiae, ciliate with nearly erect scales, most developed on the hind legs; front tibiae not dilated within.

Types.—Nos. 3197 and 3198, U.S.N.M.; length, 5 to 6 mm. Three males and four females in the Museum collection.

Locality.—Texas.

RHAMPHOMYIA ARCUATA, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennæ yellowish brown on the two basal joints, the third black, rather broadly lanceolate; style one-third as long as the third joint; proboscis scarcely longer than height of head, palpi dark brown. Thorax and scutellum black, shining, very lightly pollinose, the pile and bristles yellowish; pleura black, the pile whitish; scutellum bearing four bristles. Abdomen brownish yellow, compressed, shining, its pile sparse, yellowish white; hypopygium large, ascending, upper lamellæ large and swollen, the intermediate tapering toward the apex, the lower side rather abundant long yellowish pilose; filament free, very slender, not fractured nor flexuous. Legs slender, simple, light yellow including the coxæ; last tarsal joint brown; front metatarsi considerably thicker and longer than the middle ones, hind metatarsi much thicker and one-fourth longer than the front ones. Knob of halteres yellow. Wings hyaline, stigma obsolete, veins brownish, fourth vein entire.

Type.—No. 3199, U.S.N.M.; one male; length, 3 mm.

Locality.—Massachusetts.

RHAMPHOMYIA AMPLIPEDIS, new species.

Male.—Head black, gray pollinose except on oral margin, eyes contiguous, upper facets much larger than the lower ones; antennæ yellowish brown on two basal joints, the third black, narrow, very gradually tapering to the apex; style one-fifth as long as the third joint; proboscis three times as long as height of head, palpi dark brown. Thorax, pleura, and scutellum black, opaque, gray pollinose, the pile and bristles black; scutellum bearing four bristles. Abdomen compressed, brownish yellow, shining, its pile black; hypopygium rather large, upper lamellæ not swollen, longer than the middle ones, the latter of nearly an equal width, obliquely truncate at apex, the upper angle prolonged beyond the lower one; lower lamellæ prolonged at each side, each side-piece bending outward near its tip, which is rounded; central filament slender, not fractured, very flexuous toward its apex. Legs slender, the coxæ, femora, and tibiæ dark yellow, tarsi black; front metatarsi thicker and longer than the middle ones, hind metatarsi one-half thicker and one-third longer than the front ones; hind tibiæ at apices as thick as their femora. Knob of halteres yellow. Wings brownish gray, stigma pale brownish, veins dark brown, fourth vein entire.

Female.—Same as the male, except: Proboscis nearly four times as long as height of head; abdomen tapering to the tip; under side of middle and hind femora ciliate with scale-like setæ.

Types.—Nos. 3200 and 3201, U.S.N.M.; length, 5 to 7 mm. Seven males and three females in the Museum collection.

Locality.—Massachusetts.

RHAMPHOMYIA TERSA, new species.

Male.—Head black, bluish-gray pollinose; eyes contiguous, upper facets much larger than the lower ones; antennæ black, first two joints yellowish, the third slender, sublanceolate; style about one-third as long as the third joint; proboscis scarcely longer than height of head; palpi black; thorax, pleura, and scutellum black, opaque, bluish-gray pollinose, the sparse pile and bristles black; scutellum bearing four bristles; abdomen blackish, tinged in places with yellowish, opaque dark gray pollinose; its pile rather long and quite abundant, yellowish; hypopygium rather large, ascending, upper lamellæ considerably swollen, and below apex of each a cylindrical, fleshy, hairy process projecting backward; intermediate lamellæ longer than the others, nearly horizontal, their apices studded with numerous very short black spines; filament slightly thickened at base, then slender and flexuous, not fractured; venter compressed, opaque, yellowish except at apex; legs simple, slender, yellow, including the coxæ; hind femora outwardly, their tibiæ and all the tarsi, yellowish-brown, front metatarsi slightly thicker than the middle ones, not quite so thick, but fully as long, as the hind ones; knob of halteres light yellow; wings hyaline; veins and stigma

brownish; fourth vein entire; base of costa bearing a black bristle at least twice as long as the adjacent pile.

Type.—No. 3202, U.S.N.M.; one male; length, 5 mm.

Locality.—New Hampshire.

RHAMPHOMYIA COMPTA, new species.

Male.—Head black, eyes contiguous; antennæ dark brown, first joint slightly over twice as long as the second, the third twice as long as the first, tapering quite rapidly near the base, then of nearly an equal width; style one-third as long as the third joint; proboscis slightly exceeding height of head, palpi blackish. Thorax black, wholly shining, its sparse pile and bristles black; pleura brownish black; scutellum black, bearing four bristles. Abdomen, including the venter, shining brownish black, its pile white; hypopygium rather large and greatly expanded below, yellow pilose, central filament slender, free, very flexuous toward its tip. Legs simple, yellow including the coxæ; tarsi brown, metatarsi less than one-half as long as their tibiae, middle and hind metatarsi thicker than the front ones. Halteres yellow. Wings pure hyaline, the veins and stigma brownish, fourth vein entire.

Type.—No. 3203, U.S.N.M.; one male; length, 3 mm.

Locality.—United States.

RHAMPHOMYIA NASONI, new species.

Female.—Head black, gray pollinose; antennæ yellow, the third joint excepting the under side at the base black, rather broad; the style black, one-fifth as long as the third joint; proboscis yellow, one and one-third times as long as height of head, palpi yellow. Thorax black, opaque brownish gray pollinose, marked with three slender dark brown vittæ, its sparse pile and bristles black; humeri and a streak back of each, yellow; pleura dark brown, bluish gray pollinose, pile in front of the halteres black. Scutellum colored like the thorax, bearing four bristles. Abdomen compressed, opaque dark brown, hind margins of the first six segments, especially on the sides, yellow; venter wholly yellow; the two anal stylets largely yellow. Legs rather slender, light yellow, including the coxæ; tarsi infuscated toward the tips; legs destitute of scales and long hairs. Wings whitish hyaline from base nearly to the apex of the discal cell, from thence to the tip dark brown, marked with a white costal spot beyond the tip of the first vein; veins normal, colorless from the base to the branching of the second and third veins, beyond this brown; last section of the fifth vein one-half longer than the penultimate section.

Type.—No. 3204, U.S.N.M.; length, 5 mm. A single specimen captured May 6, 1894, by Dr. W. A. Nason, after whom I take pleasure in naming this handsome species.

Locality.—Illinois.

RHAMPHOMYIA DUPLICIS, new species.

Male.—Head black, lightly gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennæ black, third joint sublancoolate, style one-fourth as long as the third joint; proboscis slightly longer than height of head, palpi black. Thorax black, subshining, except two vittæ and the lateral margins which are gray pollinose; pile rather abundant and long, black; pleura black, opaque dark gray pollinose, its pile black; scutellum black, subshining, bearing six bristles. Abdomen depressed at base, then compressed, black, opaque grayish black pollinose, its pile black; hypopygium small, porrect, upper lamellæ longer than the middle ones, apex of lower lamella bearing a very slender, long, upwardly curving seta; central filament rather thick, hidden except on its basal third. Legs shining black, rather slender, simple; front and middle metatarsi of an equal size, hind metatarsi over twice as thick as, and one-half longer than, the others. Knob of halteres black. Wings gray, stigma and veins dark brown, fourth vein entire.

Female.—Differs from the male as follows: Abdomen depressed, tapering to the apex; middle metatarsi slightly thicker than the front ones; under side of middle and hind femora ciliate with nearly erect scales; wings uniformly grayish brown.

Types.—Nos. 3205 and 3206, U.S.N.M.; length, 4 to 5 mm. Two males and two females captured by the writer in February and March.

Locality.—Southern California.

RHAMPHOMYIA BIFILATA, new species.

Male.—Head black, opaque, gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennæ black, the third joint contracted on its under side, then of nearly an equal width; style one-fourth as long as the third joint; proboscis nearly one-half longer than height of head, palpi black. Thorax, pleura, and scutellum black, bluish gray pollinose, subopaque; pile black, on the thorax long and rather abundant; scutellum bearing four bristles. Abdomen compressed, black, opaque, grayish-white pollinose, its pile black; hypopygium rather small, porrect; upper lamellæ narrow, slightly longer than the middle ones; the latter broad, obliquely subtruncated at apices, the lower corner produced beyond the upper one, and rounded; a long, slender, upwardly curving seta issuing from apex of lower lamella; central filament rather thick, hidden except on its lower third. Legs black, simple, hind tibiæ greatly thickened on the apical part and densely long black pilose; front and middle metatarsi subequal in size, the hind ones nearly three times as thick and one-fourth longer than the others; all the tibiæ with many long black pile. Knob of halteres black. Wings whitish hyaline, stigma obsolete, veins brown; fourth vein entire.

Female.—Same as the male, with these exceptions: Abdomen depressed, tapering to the apex, hind tibiae not thickened at the tips, their pile and that of the other tibiae rather short; wings brownish gray stigma dark brown.

Types.—Nos. 3207 and 3208, U.S.N.M.; length, $3\frac{1}{2}$ to 4 mm. A male and female captured by the writer in February and March.

Locality.—Southern California.

RHAMPHOMYIA AVIDA, new species.

Male.—Head black, gray pollinose, eyes contiguous, facets of nearly a uniform size; antennae black, third joint very broad, gradually tapering to apex, style scarcely one-sixth as long as the third joint; proboscis one-fourth longer than height of head, palpi dark brown. Thorax black, opaque, bluish gray pollinose, its pile rather long and quite abundant, mixed yellow and black; pleura black, bluish gray pollinose, its pile yellow; scutellum concolorous with thorax, bearing four black bristles. Abdomen black, opaque, bluish gray pollinose, its pile rather long and quite abundant, yellowish white; hypopygium small, upper lamellae scarcely half as long as the middle ones, filament bristle-like, arcuate, free on its lower third, issuing from middle of hypopygium. Legs simple, rather stout, blackish brown, furnished with rather long black bristles; front and middle metatarsi subequal in size, the hind ones nearly twice as thick as the others. Knob of halteres yellowish brown. Wings hyaline, stigma and veins brown, fourth vein entire.

Type.—No. 3209, U.S.N.M.; length, $3\frac{1}{4}$ to 4 mm. Seven males, collected in April and May.

Locality.—Massachusetts.

RHAMPHOMYIA OTIOSA, new species.

Female.—Head black, subshining, lightly brownish pollinose, antennae black, third joint sublanceolate, style one-third as long as the third joint; proboscis nearly one-half longer than height of head; palpi black. Thorax, pleura, and scutellum black, subshining, very lightly pollinose, the pile and bristles black; scutellum bearing four bristles. Abdomen depressed, dark brown, tapering to the tip, its sparse pile black. Legs robust, dark brown, hind femora and tibiae compressed, upper and under sides of the middle and hind femora, and the inner and outer sides of the hind tibiae ciliate with nearly erect scales; middle metatarsi thicker and longer than the front ones, hind metatarsi nearly twice as thick and one-half longer than the middle ones. Knob of halteres blackish, fourth vein entire.

Type.—No. 3210, U.S.N.M.; length, 3 mm. A single specimen.

Locality.—Colorado.

RHAMPHOMYIA SETOSA, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennæ black, third joint rather broad at base, style one-third as long as the third joint; proboscis slightly longer than height of head, palpi black. Thorax black, subshining, its pile long and rather abundant, black; pleura black, gray pollinose, its pile black; scutellum black, gray pollinose, bearing eight bristles. Abdomen black, subshining lightly grayish-black pollinose; its pile long and rather abundant, black; hypopygium rather large, upper lamellæ short, as broad as long, each bearing at its upper angle a backwardly directed hook; middle lamellæ much longer than the upper, long black pilose on lower side, and just before the tip bearing a rather long, downwardly directed process; filament very thick at base, then suddenly attenuated and arcuate, the attenuated portion rather robust. Legs black, simple, rather stout, furnished with many long black pile; front and middle metatarsi nearly equally slender, the hind ones slightly thicker than the others. Knob of halteres black. Wings hyaline, tinged with brown in the basal and anal cells; stigma grayish brown, veins dark brown, entire, costa near the base bearing two long black bristles.

Closely related to *R. nigricans*, Loew, but in that species the filament of the hypopygium is flexuous toward the apex and not suddenly thickened at the base, the wings are whitish and without the brown tinge in the basal and anal cells, the base of the costa bears a single long bristle, and the abdomen is whitish pollinose.

It is also closely related to *R. clarigera*, Loew, which I have not seen, but in that species the upper lamellæ of the hypopygium are described as being slender, instead of very broad, and the filament is said to be very slender, instead of rather robust, and suddenly thickened at the base.

Type.—No. 3211, U.S.N.M.; length, $3\frac{1}{2}$ mm. Four males in the Museum collection.

Locality.—New Hampshire.

RAMPHOMYIA INSECTA, new species.

Male.—Black, including the palpi and halteres, the abdomen and legs tinged with brown; eyes contiguous, upper facets noticeably larger than the lower ones; third antennal joint rather broad, the style one-third as long as this joint; proboscis subequal in length to height of head. Thorax and pleura opaque grayish-brown pollinose, the pile of the former rather abundant and long, black on both thorax and pleura. Scutellum bearing four bristles, besides a few short pile. Abdomen depressed, subshining, its pile rather abundant, that on the dorsum very short, mixed yellowish and black; hypopygium rather large, somewhat

porrect, upper lamellæ very slender, three times as long as broad, of an equal length with median ones; filament yellow, free, very broad at base, suddenly narrowed to less than half its width at the first third of its under side, then gradually tapering to the apex, not flexuous. Legs slender, simple, thickly but very short pilose; front metatarsi noticeably more slender than the middle ones, hind metatarsi twice as thick but scarcely longer than the middle ones. Wings grayish, stigma pale brownish, veins normal, brown, last section of fifth vein longer than the penultimate section.

Female.—Same as the male, except front and middle metatarsi subequal in size, the hind ones nearly twice as thick as, and slightly longer than, the others.

Type.—No. 3212 and 3213, U.S.N.M.; length, 4 mm. A single male and female in the Museum collection.

Locality.—Texas.

RHAMPHOMYIA EFFERA, new species.

Female.—Head black, gray pollinose; antennæ black, first two joints brown, the third lanceolate; style one-fourth as long as the third joint; proboscis slightly longer than height of head, palpi brown. Thorax, pleura, and scutellum black, gray pollinose, subshining, pile and bristles of thorax mostly black, pile in front of halteres whitish; scutellum bearing four bristles. Abdomen brown, subshining, tapering behind, its pile yellowish. Legs slender, dark brown, base of femora and the coxæ lighter, more brownish yellow; under sides of middle and hind femora ciliate with nearly erect scales, the upper sides ciliate with short setæ; metatarsi of nearly an equal thickness and length. Knob of halteres pale yellow. Wings brownish gray, stigma darker, veins brown, fourth vein entire.

Type.—No. 3214, U.S.N.M.; one female; length, 4 mm.

RHAMPHOMYIA MANCA, new species.

Male.—Head black, bluish-gray pollinose; eyes contiguous, upper facets not larger than the lower; antennæ black, third joint broadly lanceolate, style one-fifth as long as the third joint; proboscis somewhat longer than height of head. Thorax, pleura, scutellum, and abdomen black, opaque bluish-gray pollinose, the pile and bristles whitish; scutellum bearing only two bristles; hypopygium large, ascending, the filament hidden. Legs simple, very dark brown, tarsi white except the last two or three joints and the front metatarsi; front and hind metatarsi subequal in size, slightly thicker than the middle ones, not one-half as long as their tibiæ. Knob of halteres light yellow. Wings whitish, veins concolorous, except the costa beyond apex of first vein; last fourth of ultimate section of the fourth vein obliterated before reaching the wing margin; stigma wanting.

Female.—Differs from the male as follows: Abdomen very dark brownish, not gray pollinose, subshining, tapering posteriorly. Tarsi brown, base of metatarsi yellowish.

Types.—Nos. 3215 and 3216, U.S.N.M.: length, $2\frac{1}{2}$ mm. Three males and one female in the Museum collection.

Locality.—North Carolina.

RHAMPHOMYIA VALGA, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets larger than the lower ones; antennæ dark brown, second joint lighter, the third rather broad, lanceolate; style one-fourth as long as the third joint; proboscis slightly longer than height of head, palpi dark brown. Thorax, pleura, and scutellum black, opaque bluish-gray pollinose, the sparse pile and bristles black; scutellum bearing two bristles. Abdomen black, the basal half mottled yellow and brown, subshining, compressed, its pile rather abundant and long, black; hypopygium small, ascending, the upper lamellæ very small and not swollen; central filament yellow, thick, arcuate, free except at apex; venter yellowish on basal half. Legs brown, extreme base of each tibia yellow; coxæ dark yellow; hind femora much thickened toward the apices, the under-side of each just before the tip bearing a rather large rounded process; near its base each hind tibia is hollowed out at a point opposite the process in the femur, so that when the legs are folded up the femoral process fits into the hollow in the tibia; the outer edge of this hollow is not fringed with setæ. Front metatarsi slightly thicker and longer than the middle ones, hind metatarsi considerably thicker but no longer than the front ones. Knob of halteres dark yellow. Wings hyaline, stigma obsolete, veins brown, fourth vein entire.

Type.—No. 3217, U.S.N.M.; one male; length, 4 mm.

Locality.—New Hampshire.

RHAMPHOMYIA CILIATA, new species.

Male.—Head black, face shining, eyes contiguous; antennæ black, third joint sublanceolate, style nearly one-third as long as the third joint; proboscis shorter than height of head, palpi black. Thorax and scutellum shining black and destitute of pollen, pleura and metanotum blackish, opaque gray pollinose; scutellum bearing only two bristles; sparse pile and bristles of thorax, pleura, and scutellum light yellowish. Abdomen shining dark brown, its sparse pile whitish; hypopygium small, ascending, central filament hidden. Legs simple, very dark brown, including the tarsi, extreme bases of tibiae yellowish; front metatarsi slightly thicker but shorter than the middle ones, hind metatarsi much thicker and longer than the others; lower sides of front metatarsi, of middle femora, and inner sides of middle tibiae ciliate with short black setæ; on outer side of each middle tibia, near its middle and also near its tip, is a very long bristle. Knob of halteres dull yellowish. Wings hyaline, veins and stigma brownish, fourth vein entire.

Female.—Differs from the male as follows: Proboscis somewhat longer than height of head. Abdomen tapering to apex. Hind metatarsi scarcely thicker than the front ones; front metatarsi and middle tibiae not ciliate, no long bristles on outer side of middle tibiae; middle femora on under sides and hind femora on upper and under sides ciliate with nearly erect scales. Wings grayish.

Types.—Nos. 3218 and 3219, U.S.N.M.; length, $3\frac{1}{2}$ to $4\frac{1}{2}$ mm. One male and two females in the Museum collection.

Locality.—New Hampshire.

RHAMPHOMYIA SCUTELLARIS, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennae black, third joint contracted on the under side near the middle, the terminal portion of nearly an equal width; style more than one-third as long as the third joint; proboscis one-fourth longer than height of head, palpi black. Thorax black, subshining, lightly grayish brown pollinose and marked with three black vittae, pile rather abundant and long, black; pleura black, opaque grayish brown pollinose, its pile black; scutellum black, subshining, lightly grayish brown pollinose, bearing fourteen bristles. Abdomen depressed, black, subshining, lightly gray pollinose; its pile black, hind margins of segments 2 to 6 pale yellow; hypopygium small, porrect, lower lamellae curving upward and pointed at apices, central filament hidden except at extreme base. Legs black, rather slender, simple; front metatarsi slightly thicker and longer than the middle ones, hind metatarsi much thicker and one third longer than the front ones. Knob of halteres pale yellow. Wings dark gray, somewhat brownish along the veins, stigma and veins dark brown, fourth vein entire.

Type.—No. 3220, U.S.N.M.; length, 11 mm. A single male taken by the writer.

Locality.—Northern California.

RHAMPHOMYIA FIMBRIATA, new species.

Male.—Head black, brownish gray pollinose except on oral margin, eyes contiguous, upper facets much larger than the lower ones; antennae black, the third joint broad, gradually tapering to the apex, style one-half as long as the third joint; proboscis one-third longer than height of head, palpi black. Thorax subshining, lightly brownish pollinose, almost brassy, and marked with three black vittae, its pile and bristles black; pleura black, subopaque, gray and brownish pollinose, its pile black; scutellum black, subshining, lightly brownish pollinose, bearing four bristles. Abdomen subdepressed, black, shining, its pile and long lateral bristles black; hypopygium rather large, ascending, abundant black pilose; central filament thick, free except near the apex,

not fractured nor flexuous. Legs black, rather robust, simple; front metatarsi slightly thicker and longer than the middle ones, hind metatarsi much thicker and one-fourth longer than the front ones. Knob of halteres yellow. Wings brownish gray, stigma and veins dark brown, fourth vein entire.

Female.—Same as the male, with these exceptions: Under sides of middle and hind femora ciliate with nearly erect scales; front metatarsi not noticeably thicker than the middle ones.

Types.—Nos. 3221 and 3222, U.S.N.M.; length, 9 to 10 mm. Two males and four females captured by the writer in March.

Locality.—California.

RHAMPHOMYIA ABDITA, new species.

Male.—Head black, opaque gray pollinose; eyes contiguous, upper facets much larger than the lower; antennæ blackish, third joint broadly lanceolate, style almost one-third as long as the third joint; proboscis slightly longer than height of head. Thorax subopaque black, gray pollinose, its sparse pile and bristles black; pleura black, gray pollinose, its pile whitish; scutellum opaque gray pollinose, bearing four bristles. Abdomen somewhat depressed, black, subshining, its pile whitish; hypopygium small, the filament hidden. Legs black, hind tibiæ strongly curved inward near the base, front tibiæ dilated on the inner sides of the apical two-thirds, the dilated portion thickly ciliate with short setæ and pile; front metatarsi as thick as, but only two-thirds as long as, the hind ones; middle metatarsi much slenderer than the others. Knob of halteres dark yellow. Wings hyaline, veins normal, stigma brown.

Female.—Same as the male, with these exceptions: Hind tibia straight, front ones not dilated, front metatarsi noticeably thicker than the hind ones; both sides of femora, and of front and hind tibiæ, also inner sides of middle tibiæ on the basal third, ciliate with nearly erect scales.

Types.—Nos. 3223 and 3224, U.S.N.M.; length, 6 mm. One male and three females collected by Prof. C. V. Piper.

Locality.—Washington.

RHAMPHOMYIA VIRGATA, new species.

Female.—Head black, opaque gray pollinose next the antennæ, elsewhere shining; antennæ very dark brown, third joint but slightly narrowing toward the apex, which is unusually broad; style one-sixth as long as the third joint; proboscis three times as long as height of head, palpi brown. Thorax black, grayish white pollinose except four shining vittæ, a humeral spot, and the narrow lateral margin; the two median vittæ begin at the prothorax and extend slightly behind the suture; the lateral ones begin near the hind edge and extend three-

fourths the distance to the front end; sparse pile and bristles black; pleura black, lightly white pollinose, its pile whitish; scutellum black, lightly white pollinose, bearing four bristles. Abdomen black, very shining, depressed, tapering posteriorly, its sparse pile whitish; narrow hind margins of segments 2 to 4 laterally whitish. Legs black, shining except on the coxæ, simple, rather slender; metatarsi of nearly an equal thickness, the hind ones one fourth longer than the others. Knob of halteres pale yellow. Wings grayish hyaline, veins and stigma brown, fourth vein entire.

Type.—No. 3225, U.S.N.M.; one female; length, 7 mm.

Locality.—Massachusetts.

RHAMPHOMYIA SUDIGERONIS, new species.

Male.—Black in all its parts excepting the light yellow halteres and central filament of the hypopygium. Eyes contiguous, upper facets much larger than the lower ones; third antennal joint broad, two and a half times as long as broad, style nearly as long as the third joint; proboscis nearly twice as long as height of head. Thorax subshining, lightly gray pollinose, marked with three black vittæ, the pile confined to these vittæ and to the broad lateral margins, quite abundant and rather long, black; pleura light gray pollinose, its pile black. Scutellum subshining, naked except the four marginal bristles. Abdomen subshining, the base subdepressed, toward the tip somewhat compressed, its pile quite abundant and rather long, black; hypopygium rather large, upper lamellæ slender, shorter than the median, the latter only slightly longer than broad; central filament free except its apex, arcuate, rather robust. Legs rather robust, simple, the middle and hind tibiæ bearing several quite long bristles; front metatarsi somewhat thicker and one-third longer than the middle ones; hind metatarsi noticeably thicker and one-fourth longer than the front ones; hind coxæ greatly swollen at the middle. Wings uniformly pale brown, stigma dark brown, veins normal.

Female.—Same as the male, except that the abdomen is depressed, and the under side of the hind femora is ciliate with nearly erect scales.

Types.—Nos. 3226 and 3227, U.S.N.M.; length, 7 to 10 mm. Eleven males and six females collected by the writer in March and April.

Locality.—California.

RHAMPHOMYIA AMPLICELLA, new species.

Female.—Head black, gray pollinose; antennæ black, the third joint broad, gradually tapering to the apex, style one-fourth as long as the third joint; proboscis slightly longer than height of head, palpi black. Thorax, pleura, and scutellum black, opaque, gray pollinose, thorax marked with two blackish vittæ, its short, sparse pile and the bristles black; pile of pleura whitish; scutellum bearing four bristles. Abdo-

men tapering to the tip, black, opaque, on the first five segments densely silvery white pollinose, that on the remaining segments grayish brown, its pile sparse, whitish. Legs black, simple; front metatarsi much thicker than the middle ones, as thick and nearly as long as the hind ones. Knob of halteres whitish. Wings hyaline on the costo-basal half, the remaining portion grayish brown, stigma and veins dark brown; discal cell unusually long, almost reaching the wing margin, second and third posterior cells united; posterior cross vein sinuous, its middle portion nearly parallel with the fourth vein, near its lower end bent at nearly a right angle.

Type.—No. 3228, U.S.N.M.; length, 4 mm. A single female captured by the writer in February.

Locality.—Southern California.

RHAMPHOMYIA STYLATA, new species.

Female.—Head black, grayish brown pollinose; antennæ black, third joint sub lanceolate; style unusually large, over one-half as long as the third joint; proboscis slightly longer than height of head, palpi black. Thorax and scutellum black, subshining, lightly brownish gray pollinose, thorax marked with three blackish vittæ, its pile rather long, black; pleura black, opaque brownish gray pollinose, its pile black; scutellum bearing four bristles. Abdomen compressed, tapering to the apex, black, dark gray pollinose, the narrow hind margin of each segment except the first, shining; entire eighth segment shining, sparse pile of abdomen black. Legs very robust, black, under sides of the middle and hind femora, and inner sides of the hind tibiæ ciliate with nearly erect scales; hind femora nearly twice as thick as their tibiæ; front metatarsi slightly thicker than the middle ones, hind metatarsi considerably thicker and longer than the front ones. Knob of halteres pale yellow. Wings brownish gray, stigma brown, veins dark brown, fourth vein entire.

Type.—No. 3229, U.S.N.M.; length, 5½ mm. A single female taken by the writer in March.

Locality.—Southern California.

RHAMPHOMYIA PILIGERONIS, new species.

Male.—Head black, gray pollinose, eyes contiguous, upper facets much larger than the lower; antennæ black, third joint rather narrow, style one-fifth as long as the third joint; proboscis as long as height of head, palpi black. Thorax black, opaque, bluish gray pollinose, marked with three dark brown vittæ, its sparse pile, like the bristles, pale yellowish; pleura black, bluish gray pollinose, its pile white; scutellum black, gray pollinose, bearing four light yellow bristles. Abdomen black, opaque, grayish black pollinose, its pile long and quite abundant, light yellow; hypopygium very long, slender, projecting obliquely

forward over the back, more than three times as long as perpendicular diameter of last abdominal segment; filament very thick at extreme base, then suddenly becoming slender and bristle-like, nearly twice as long as the hind femora, ascending over the back and slightly sinuous, beyond its middle curving and descending to the hypopygium. Legs simple, rather stout, blackish brown, the middle and hind pair beset with long light yellow bristles, which are excessively long on the under side of the hind femora and on outer side of the hind tibiae; front and hind metatarsi of nearly an equal size, the middle ones much more slender and shorter than the others. Knob of halteres light yellow. Wings hyaline, stigma obsolete, veins brown, fourth vein entire but very slender, as is also the anterior intercalary and posterior cross vein.

Type.—No. 3230, U.S.N.M.; length, 4 mm. A single male collected by Mr. Charles Robertson.

Locality.—Illinois.

RHAMPHOMYIA FLEXUOSA, new species.

Male.—Head black, lightly gray pollinose, eyes contiguous, upper facets much larger than the lower ones; antennae dark brown, the third joint black, sublanceolate, style nearly one-half as long as the third joint; proboscis nearly one-half longer than height of head, palpi black; thorax, pleura, and scutellum black, lightly grayish brown pollinose, subshining, the sparse pile and bristles black; scutellum bearing four bristles; abdomen black, shining, compressed, its pile rather long, sparse, black; hypopygium rather large, ascending; filament free, slender, yellow, not fractured, very flexuous toward the tip; legs slender, simple, wholly brownish black; front and middle metatarsi of an equal size, the hind ones twice as thick as and one-half longer than these. Knob of halteres light yellow; wings, uniformly brownish gray, veins and stigma dark brown, fourth vein entire.

Female.—Same as the male, except that the abdomen is dull brownish and tapers to the tip.

Types.—Nos. 3231 and 3232, U.S.N.M.; length, 6 mm. A single male and female in the Museum collection.

Locality.—Colorado.

RHAMPHOMYIA PARVA, new species.

Female.—Head black, bluish gray pollinose; antennae black, third joint lanceolate; style one-sixth as long as the third joint; proboscis scarcely longer than height of head, palpi black. Thorax, pleura, and scutellum black, opaque, bluish gray pollinose, the sparse pile and bristles black; scutellum bearing four bristles. Abdomen very dark brown, opaque, very lightly gray pollinose, tapering posteriorly. Legs rather slender, dark brown; under sides of hind femora ciliate with nearly erect scales; front and middle metatarsi of an equal size, some-

what slenderer, but scarcely shorter, than the hind ones. Knob of halteres pale yellow. Wings dark gray, veins and stigma brownish, fourth vein entire.

Type.—No. 3233, U.S.N.M.: one female; length, $2\frac{1}{2}$ mm.

Locality.—Massachusetts.

RHAMPHOMYIA GILVIPILOSA, new species.

Female.—Black, the halteres yellowish. Head dark gray pollinose, a row of black bristles along each side of the front. Third joint of antennæ broad, two and one-half times as long as wide, the style one-fifth as long as the third joint; proboscis one-third longer than height of head. Thorax opaque, dark gray pollinose, marked with four black vittæ, its short pile and bristles yellowish; pleura gray pollinose, its pile white; scutellum bearing only two bristles. Abdomen subopaque, its pile rather long and abundant, yellowish white. Legs destitute of scales and of long pile; front metatarsi slightly thicker than the middle ones, hind metatarsi considerably thicker and one-third longer than the front ones. Wings pale brown, the stigma and veins slightly darker, last section of the fifth vein twice as long as the penultimate section.

Type.—No. 3234, U.S.N.M.; length, 4 to 5 mm. Collected by Dr. W. A. Nason and Mr. Charles Robertson.

Locality.—Illinois.

NEOCOTA, new genus.

Same as *Rhamphomyia*, except that the face is thickly covered with long pile. Third vein simple, not furcate, discal cell complete, sending three veins to the wing margin; anal cell shorter than the second basal, the vein at its apex nearly parallel with the hind margin of the wing.

Type *Neocota weedii*, new species, described below.

NEOCOTA WEEDII, new species.

Male.—Head black, face and front somewhat shining, face thickly covered with long black pile; eyes very narrowly separated; the interval narrower than width of the lowest ocellus; antennæ black, first joint three times as long as the second, thickly long black pilose above and below; third joint twice as long as the first, broad, slightly tapering on its basal three-fourths, thence rapidly tapering to the apex; style one-third as long as the third joint; proboscis scarcely longer than height of head, palpi blackish brown. Thorax black, opaque (markings effaced in the single specimen examined); pile of thorax long, abundant, black, that at each end of pleura black; scutellum bearing about twelve black bristles besides several long black pile. Abdomen depressed, black, opaque, the sides covered with abundant long black pile; hypopygium rather large, ascending; upper lamellæ very small, the intermediate ones very large, not tapering toward the apex, blackish brown, long black pilose; central filament yellow, hidden except on

its basal third. Coxæ black, femora and tibiæ dark brown, tarsi black; legs simple, abundant long black pilose, front metatarsi distinctly thicker but not longer than the middle ones, hind metatarsi much thicker and one-third longer than the front ones. Halteres brownish yellow. Wings uniformly dark brown, fourth vein entire.

Type.—No. 3235, U.S.N.M.; length, 8 mm. A single specimen received from Prof. H. E. Weed, after whom the species is named.

Locality.—Mississippi.

Genus MEGHYPERUS, Loew.

MEGHYPERUS OCCIDENS, new species.

Male.—Black in all its parts, including the antennæ, proboscis, palpi, halteres, and legs; eyes contiguous, third antennal joint conical, slightly longer than wide, the arista two-thirds as long as the third joint; proboscis horizontal, nearly as long as height of head. Thorax subshining, lightly gray pollinose, that on the pleura more dense; scutellum bearing six black bristles. Abdomen opaque velvet black, its pile whitish; venter gray pollinose, hypopygium small, porrect, slightly longer than the seventh segment. Legs rather robust, destitute of bristles; upper sides of hind femora with a fringe of white pile, hind femora somewhat broader than any of the others, their tibiæ greatly dilated, widening from the base to the middle, then of nearly an equal width to the apex, which is rounded, at its greatest width nearly twice as wide as the hind femora; hind metatarsi nearly twice as thick as any of the others. Wings hyaline, stigma and veins brown, anal cell nearly as long as the second basal.

Female.—Same as the male, except that the eyes are broadly separated, front shining, abdomen subshining, hind tibiæ slightly narrower.

Types.—Nos. 3236 and 3237, U.S.N.M.; length, 2 to 3 mm. Three males and two females taken by the writer in April and June.

Locality.—Southern California.

Genus LEPTOPEZA, Macquart.

ANALYTICAL KEY TO THE SPECIES OF LEPTOPEZA.

Black, the palpi, greater portion of the legs, and the halteres yellowish; length,	
4 mm.....	<i>flavipes</i> .
Yellowish, the head and greater portion of the abdomen, blackish; length nearly	
4 mm.....	<i>compta</i> .

LEPTOPEZA COMPTA, new species.

Female.—Head black, gray pollinose, eyes contiguous; antennæ yellow, third joint elongate oval, twice as long as broad, the arista black and nearly twice as long as the antennæ; proboscis and palpi yellow,

proboscis less than one-third as long as height of head. Thorax, pleura, scutellum, and metanotum yellow, scutellum bearing two long yellow bristles, besides several very short ones. Abdomen blackish brown, the first segment, narrow lateral margins and front margin of each segment, yellow; venter yellow. Legs slender, light yellow, including the coxæ. Halteres light yellow. Wings grayish hyaline, stigma wanting, first vein extending considerably beyond apex of discal cell.

Type.—No. 3238, U.S.N.M.; length, nearly 4 mm. Two female specimens, one of which was captured June 15.

Locality.—New Hampshire and Massachusetts.

Genus SYNECHES, Walker.

ANALYTICAL KEY TO THE SPECIES OF SYNECHES.

1. Wings unspotted, or marked with only one black spot..... 2
 - Wings marked with a black spot beyond apex of first vein and another at apex of second vein; marginal cell at tip of first vein twice as wide as the submarginal cell at the same point..... *simplex*.
2. Legs partly or wholly yellowish..... 3
 - Legs wholly black, thorax marked with a white pollinose humeral spot, and with a similar one in front of the scutellum; stigma brownish..... *albonotatus*.
3. Wings marked with a brown stigmal spot..... 4
 - Wings with a pale grayish stigmal spot, femora wholly yellow.. *hyalinus* (p. 437).
 - Wings unspotted, knob of halteres and the entire body black, apex of second vein strongly curved, bases of femora black..... *pusillus*.
4. Marginal cell at apex of first vein twice as wide as the submarginal cell at the same point; knob of halteres whitish..... 5
 - Marginal cell at tip of first vein not wider than the submarginal cell at the same point; knob of halteres black..... *debilis* (p. 436).
5. Thorax wholly yellowish..... *rufus*.
 - Thorax marked with three black vittæ, or wholly blackish..... *thoracicus*.

SYNECHES DEBILIS, new species.

Male.—Antennæ black, proboscis and palpi yellow. Thorax yellow, marked with three vittæ and a lateral spot of yellowish brown. Abdomen and knob of halteres black. Legs yellow, the last tarsal joint, apices of hind femora, middle of hind tibiæ and of their first tarsal joints, black. Wings grayish hyaline, stigma pale smoky brown, marginal cell at tip of first vein not wider than the submarginal cell at the same point.

Type.—No. 3239, U.S.N.M.; length, $3\frac{1}{2}$ mm. Four specimens collected by the writer in June.

Locality.—District of Columbia and Maryland.

SYNECHES HYALINUS, new species.

Female.—Opaque black; base of abdomen yellowish; antennae and knob of halteres yellowish brown; proboscis and legs yellow; coxæ, trochanters, and tips of tarsi, black; wings hyaline; stigma pale grayish; marginal cell beyond apex of first vein nearly twice as wide as the submarginal cell at the same point.

Type.—No. 3240, U.S.N.M.; length, 5 mm. A single specimen captured by the writer.

Locality.—Maryland.

Genus HYBOS, Meigen.

ANALYTICAL KEY TO THE SPECIES OF HYBOS.

Knob of halteres yellowish, eyes widely separated on the face, proboscis horny, rigid, longer than height of head, under side of first two joints of hind tarsi provided with short black spines:

Wings hyaline to discal cell, the remainder brown *reversus*.

Wings, except the stigma, wholly hyaline..... *slossoni* (p. 437).

HYBOS SLOSSONÆ, new species.

Male and female.—Head, including the antennae, proboscis, and palpi, black; face broad, whitish pollinose; proboscis slender, rigid, slightly longer than height of head, only slightly longer than the palpi. Thorax black, shining, lightly pollinose, the pile rather long, yellowish white; pleura black, subshining, lightly pollinose, no long pile in front of halteres; scutellum black, subshining, bearing two long yellowish apical bristles and several shorter ones. Abdomen black, shining, its long pile yellowish white; in the female not tapering to a point behind, its apex rounded. Coxæ and femora black, apices of front and middle femora yellow; front and middle tibiae yellow, the hind ones black; tarsi yellow, under side of the first two joints of hind tarsi beset with small black points, sides of hind metatarsi destitute of long black spines. Knob of halteres yellow. Wings hyaline, the stigma grayish brown.

Types.—Nos. 3241 and 3242, U.S.N.M.; length, 3 to 4 mm. Eight males and nine females, one of which was received from Mrs. A. T. Slosson, to whom the species is respectfully dedicated.

Locality.—New Hampshire.

EUHYBUS, new genus.

Same as *Hybos*, with these exceptions: Eyes in both sexes contiguous on the face, proboscis much shorter than height of head, under side of hind tarsi destitute of short black spines, halteres black. Contains the species: *Hybos subjectus*, Walker, *H. purpureus*, Walker, and *H. triplex*, Walker.

Genus PLATYPALPUS, Macquart.

An examination of the type of *Oscinis crassifemoris*, Fitch, now the property of the National Museum, proves that it belongs to *Platypalpus*. *P. alerippus*, Walker, is too imperfectly described to admit of giving it a place in the following table.

ANALYTICAL KEY TO THE SPECIES OF PLATYPALPUS.

1. Thorax wholly black 5
 Thorax largely or wholly yellowish, femora and tibiae wholly yellow, third antennal joint short ovate 2
2. Without a black vitta on the thorax 3
 With such a vitta; head, middle of scutellum and dorsum of abdomen black, apical spur of middle tibiae minute, first and second basal cells subequal, front femora scarcely thicker than the hind ones.... *mesogrammus*.
3. Head black 4
 Head and body and all the members except the eyes and antennal arista yellow, first basal cell shorter than the second, front femora twice as thick as the hind ones..... *tersus* (p. 439).
4. First basal cell shorter than the second, sixth vein obsolete at base, proboscis wholly black, front femora moderately thickened..... *lulus*.
 First basal cell as long as the second, sixth vein not obsolete at base, proboscis yellow basally, front femora not thickened..... *flavirostris*.
5. Femora wholly yellow 6
 Femora yellow, front and hind ones marked with a subapical black dot, front femora moderately thickened, third antennal joint short ovate, first and second basal cells subequal..... *apicalis*.
 Femora largely or wholly black, third antennal joint short ovate, first basal cell shorter than the second, front femora slightly thickened..... 11
6. Middle femora greatly thickened 7
 Middle femora subequal to the others, legs slender, subequal in size.... *vicarius*.
7. Tarsi yellow, apex of each joint black 8
 Tarsi, except the first joint, wholly blackish, third antennal joint short lanceolate, front femora slightly thickened, first and second basal cells equal in length, sixth vein not obsolete at base..... *lateralis*.
 Tarsi of front legs of male wholly whitish, thickly white pilose; middle tarsi wholly black, the first joint ovate and on the side ciliate with short black pile; anal cell complete..... *discifer*.
8. Anal cell open behind 9
 Anal cell complete, middle femora greatly thickened 10
9. Middle femora greatly thickened, spurs at tips of middle tibiae large, front femora very thick, third antennal joint lanceolate, first and second basal cells subequal in length *aqualis*.
 Middle femora moderately thickened, spurs at tips of front tibiae medium, first two antennal joints yellow *crassifemoris*, *debilis*.
10. Wings brownish; antennae, except the tip, yellow (female)..... *discifer*.
 Wings grayish hyaline, antennae wholly black, the third joint short ovate, front femora moderately thickened, first basal cell shorter than the second..... *trivialis*.
11. Pleura, except a small spot, wholly opaque, whitish pollinose, middle femora greatly thickened; inhabits the Atlantic States..... *pachygnemus*.
 Pleura wholly shining, destitute of pollen, middle femora not thickened; inhabits California..... *incultus* (p. 439).

PLATYPALPUS TERSUS, new species.

Male and female.—Yellow in all its parts, only the eyes and arista black. Third antennal joint short oval, scarcely longer than broad. Front femora twice as thick as the hind ones, middle femora one-half thicker than the front ones. Wings hyaline, third and fourth veins parallel, second basal cell longer than the first, sixth vein obsolete on its basal fourth, anal cell therefore open behind except near its apex.

Types.—Nos. 3243 and 3244, U.S.N.M.; length, 2 to 3 mm. Five males and eleven females in the Museum collection.

Locality.—Georgia and North Carolina.

PLATYPALPUS INCULTUS, new species.

Male.—Head black, shining; antennæ black, third joint short oval, scarcely longer than broad, arista four times as long as the antennæ; proboscis one-half as long as height of head, palpi black. Thorax shining black, its pile quite abundant, but short, depressed, yellowish; pleura shining black, not pollinose; scutellum black, bearing two long apical and two much shorter lateral bristles. Abdomen like the thorax. Front coxæ yellowish, less than one-half as long as their tibiæ, the others black; front and middle legs yellowish, upper and lower sides of the femora blackish brown; tarsi and hind legs, except bases of tibiæ, blackish brown; front femora slightly thicker than the others, middle femora scarcely as thick as the hind ones; legs destitute of long bristles or pile. Knob of halteres yellowish. Wings hyaline, veins brownish, third vein reaching the costa slightly before the extreme apex of wing, second basal cell longer than the first a distance equaling three times the length of the cross vein at apex of the former cell; cross vein at apex of anal cell, and basal half of sixth vein, obliterated.

Type.—No. 3245, U.S.N.M.; length, 2 mm. A single male collected in April.

Locality.—Southern California.

Genus TACHYDROMIA, Meigen.

ANALYTICAL KEY TO THE SPECIES OF TACHYDROMIA.

- | | |
|--|----------------------------|
| Thorax wholly black | 1 |
| Thorax yellowish; inhabits Jamaica, West Indies | <i>bacis.</i> |
| 1. Wings destitute of brown cross bands | 2 |
| Wings whitish, marked with two broad, brown cross bands; anal cross vein wanting, legs more or less yellowish, scutellum bearing four bristles | <i>schwarzii</i> (p. 440). |
| 2. Wings gray, costal edge to third vein brown, anal cross vein wanting, front and middle femora striped with black, the hind ones largely black | <i>pusilla.</i> |
| Wings gray, veins bordered with brown; legs, antennæ, and halteres yellow | <i>rittipennis.</i> |

- Wings brown, the base, except a border to the fifth vein, white; anal cross vein present; legs wholly black, halteres whitish, inner sides of middle tibiæ not emarginate before the tips. *claripes*.
- Wings hyaline, base white, a black spot at last third of the costal margin, legs and antennæ wholly black. *maculipennis*.
- Wings brownish, the base white, anal cross vein present, middle femora yellow, inner sides of middle tibiæ of male emarginate near the tips. 3
- Wings wholly gray or brownish. 4
3. Front and hind femora marked with black. *rapax*.
- Front and hind femora wholly yellowish. *rostrata*.
4. Femora and antennæ wholly black. 5
- Femora, or at least the front and middle ones, partly or wholly yellow, middle femora wholly yellow. 6
5. Tibiæ and knob of halteres yellow. *porticola*.
- Tibiæ and halteres black. *winthemi*.
6. Front femora marked with black. 7
- Front femora wholly yellow, legs yellow, the hind ones black, halteres and antennæ whitish. *postica*.
7. Tibiæ yellow, the middle and hind ones partly black, halteres and antennæ yellow. *similis*.
- Tibiæ wholly yellow, scutellum bispinose. *fenestrata*.

TACHYDROMIA SCHWARZII, new species.

Male and female.—Head black, opaque gray pollinose, the cheeks shining; antennæ yellowish, the third joint short conical, the apical arista bristle-like, four times as long as the antennæ; palpi nearly as long as the proboscis and appressed to it, their front part densely covered with appressed silvery-white pile in the male. Thorax, pleura, scutellum and abdomen shining black. Legs dark brown; bases of tibiæ and of tarsi, and sometimes of the femora, yellowish. Knob of halteres whitish. Wings whitish, crossed by two broad, brown cross bands, the first extending from base of second vein to slightly beyond the posterior cross vein, the second extending from slightly beyond apex of fifth vein to a short distance beyond the tip of the second vein, leaving the base of the wing, a cross band just beyond the middle, and the tip of the wing, whitish; anal cross vein wanting, the other two of an equal length, the distance between them subequal to that between the small cross vein and base of the third vein, the second basal cell being much longer than the first; distance between tips of third and fourth veins equal to one-third of that between the second and third veins; marginal cell about one-half as wide as the submarginal.

Types.—Nos. 3246 and 3247, U.S.N.M.; male and female; length, $2\frac{1}{2}$ mm. The Utah specimen was collected June 20, by Mr. E. A. Schwarz, after whom I take pleasure in naming this handsome species.

Locality.—Northern California and Utah.